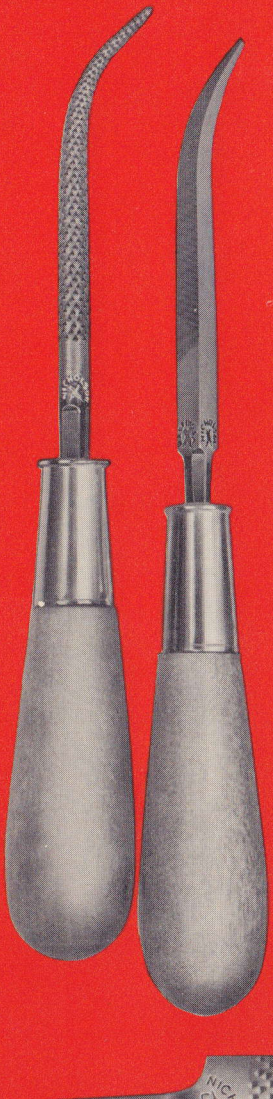


101

HOME WORKSHOP PROJECTS for WOOD RASPS and FILES

25c

NICHOLSON FILE COMPANY • PROVIDENCE, R.I., U.S.A.

INDEX

101 HOME WORKSHOP PROJECTS for WOOD RASPS and FILES

by

Edwin M. Love

NICHOLSON FILE COMPANY • PROVIDENCE, R. I., U. S. A.

Wood Rasps and Files

UNIVERSAL TOOLS

Wood rasps and files are exceptional tools, efficient in the dual role of roughing and finishing. However intricate an edge or involved the curves of a surface, a rasp or file is master of the situation. If the piece is only roughly formed, the coarser teeth are called upon, trimming down the rough spots in hard or soft woods at a rate hardly to be approached by other tools. As the work progresses finer rasps are substituted, and later files take over.

Rasps and files are especially useful in the production of single units. They are favored by the occasional or creative craftsman, who rarely makes more than one project of a kind. Files may do a job in less time than it takes to set up a machine for the work. For instance, two or three beads on a square table leg can be filed to shape while suitable knives are locked in a molding head, the head is mounted on a saw arbor, depth of cut is checked, and the miter gauge is set. Then too, cutters of the right pattern may not be at hand, requiring reworking with files after machining.

As finishing tools, files and rasps take over where other hand or power equipment leaves off. Jigsaws and band saws leave inside angles that often are inaccessible to machine sanders. A molding head cannot work into hollows, nor can a shaper cutter reach into a corner. Carving machines fall short of complete modeling. But a knife-edged file can smooth a narrow vee, and a half round file will dress an inside curve.

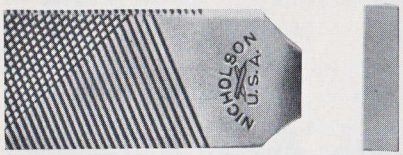
The rigidity of a file insures a straight cut where needed, with no dubbing of the corners. Where hard and soft grains alternate, as in fir, the file shears impartially through the horny growth and spongy tissue. Yet arrises can be rounded and curved sections smoothed by rocking the file and rolling it along the contours.

The design of rasps and files, which essentially are gangs of keen chisels in rigid alignment, limits the effort required to push them. They are not laborious to use. In fact, a light touch is more often the requirement than otherwise. There is no sharpening problem, as with most other tools, and they are inexpensive by any standard. They are so universally used that they are obtainable in the smallest town, as hardware stores, lumber yards, and implement houses who stock rasps and files will order

any special kinds desired. In brief, rasps and files are indispensable tools to any woodworker, especially to the craftsman whose selection of tools must be limited. A few carefully chosen rasps and files suffice for a considerable variety of work, and can be added as needed.

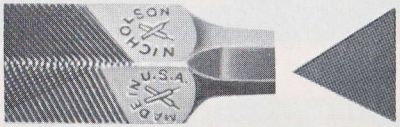
TYPES

Straight rasps and files, having rectangular, half round, and round sections, are termed wood files, and in finer cuts, cabinet files. Square, triangular, and knife sections are available only in metal cutting files which, if coarse-toothed, are useful in woodworking. Bent rifflers handled are adapted to carving operations. Popular file forms are illustrated below and others, equally useful to the home craftsman, are shown on pages 64 and 65.

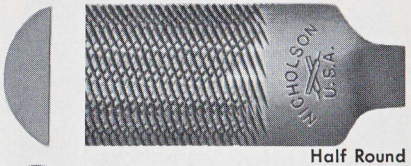


Flat

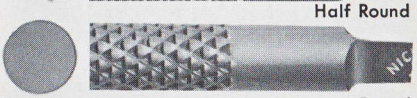
Square



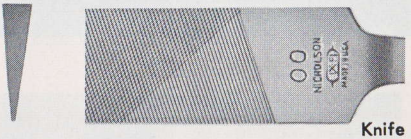
Three Square



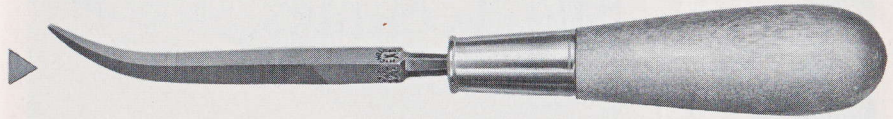
Half Round



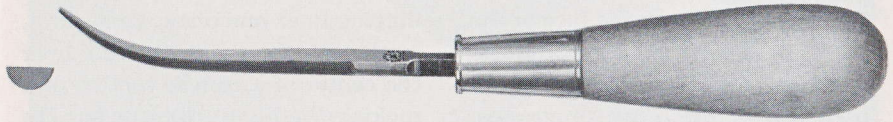
Round



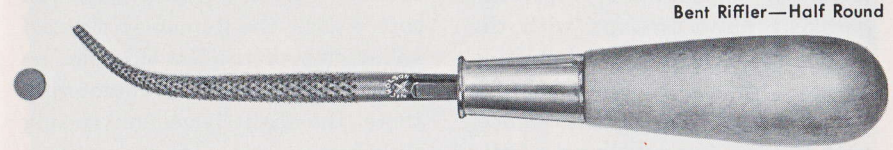
Knife



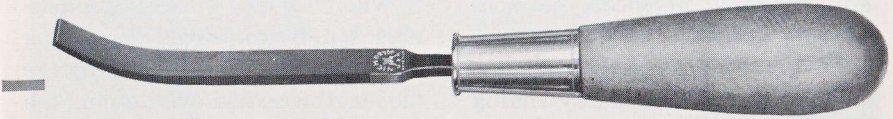
Bent Riffler—Three Square



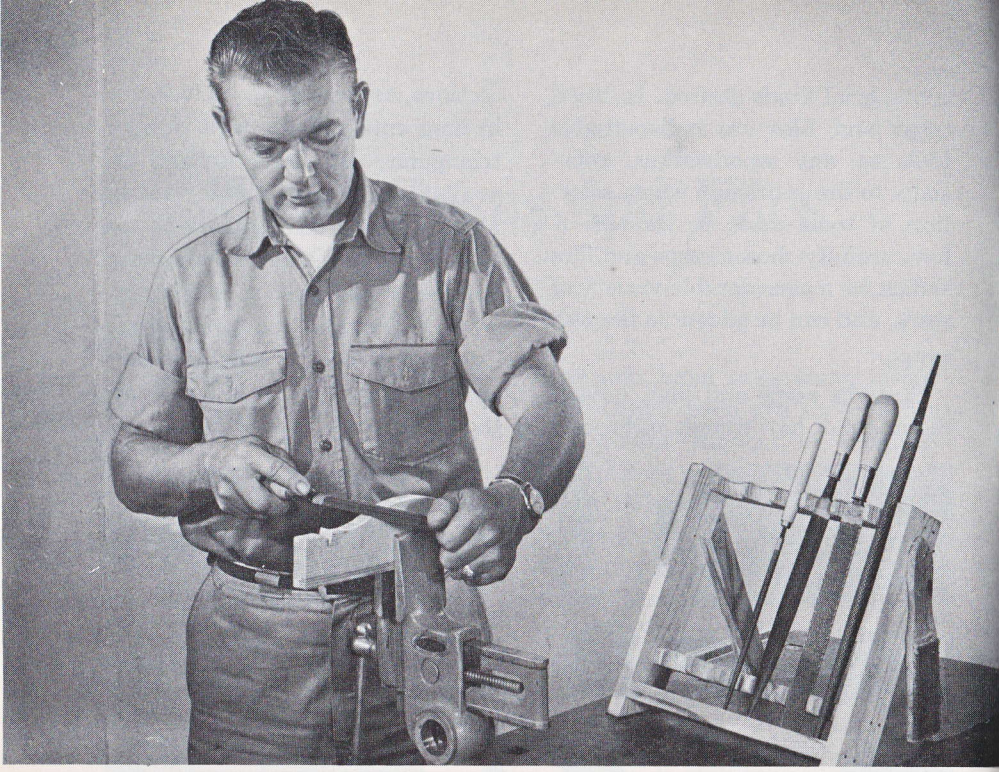
Bent Riffler—Half Round



Bent Riffler—Round



Bent Riffler—Hand



8" Half Round Wood File

File Technics

TRUING BAND-SAWED EDGES

Band or jigsawed edges are usually cut square with the face of the piece. If there is much stock to remove begin with a rasp and change to a file as the work progresses. Stroke evenly, pressing with the left hand at the start and shifting pressure to the right as the file moves forward. A good stance, with the left foot advanced a little and the body balanced, helps in keeping the file level.

Do not file back and forth in one spot: spread the stroke by sliding the file sidewise as it moves forward, a shearing cut that prevents digging in at one place. In general, work with the grain, starting near the center of a convex section and rocking the file to right or left. In soft woods the tendency toward splintering of the far side can be overcome by light chamfering there, the slight bevel buttressing the fibers.

When working on a disc, roundness can be improved by taking strokes along the edge, rocking the file lengthwise and overlapping the strokes.

Filing concave edges is the reverse of smoothing convex sections. Start at the ends and work toward the center in order to cut with the grain.

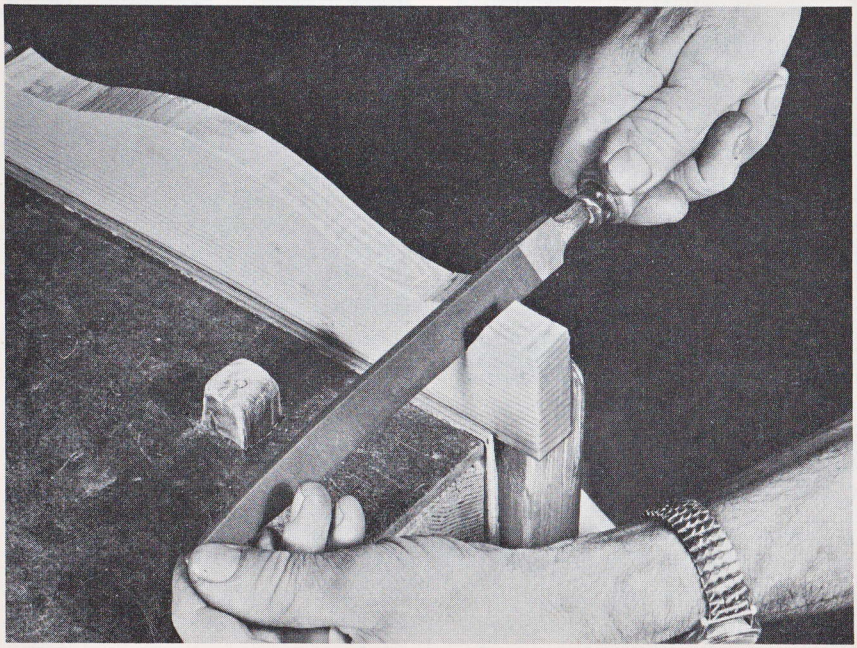
Some scrolled work calls for crisp, sharp arrises. These are gained, not by leaving the raw edge but by "breaking" or slightly rounding the arrises to the radius of a small pencil lead. Slide a fine file along the edge at an angle of 45°. Again, grain direction is favored. This slight roundness retains a film of paint or varnish, where otherwise it would be wiped clean by the brush; and this finish reflects a sharp high-light.

FILING VEES

Breaks between curves require careful treatment to preserve cleanness of line. When smoothing a vee, work into the angle as far as possible with the edge of a half round file. The remaining narrow opening can be reached with a knife file, and as the amount of wood to be removed is small, a few strokes will do the work, leaving the wood as smooth as if sanded.

AND POINTS

When filing points, avoid breaking off the tips or dulling them by rolling the file. Whether the side of a point is straight or curved, start the stroke with the edge of the file projecting above and slide downward as well as forward. On straight or convex sides, use the flat side of the tool; on concave work, the rounded side. Break the tip as well as the face arrises.

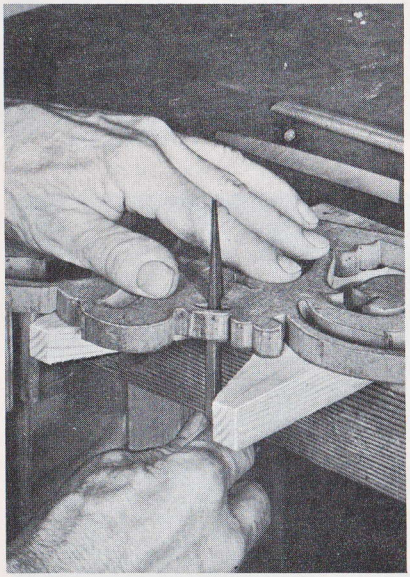


8" Knife File No. 00

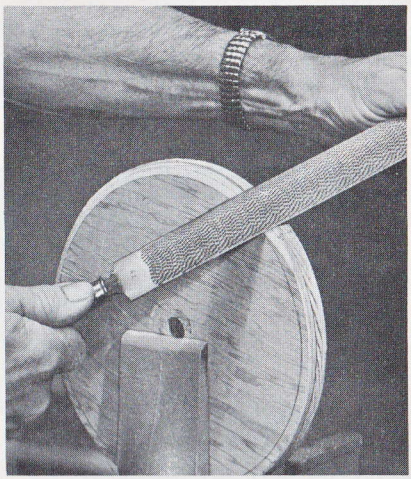
SMOOTHING PIERCED WORK

Intricate scroll-sawing is usually done in thin wood. For filing, the work is best rested on a board having a vee-shaped opening in one end. This support is clamped to the bench top, or if clamps interfere, it is screwed down. The holes do not seriously mar the bench top and can be used again and again for such work.

Locate the hole to be smoothed close into the angle of the support. As the thin wood cuts rapidly, the smaller sizes of files are used. Hold the work down with the left hand, the right hand operating the file with vertical strokes. The sidewise sliding of the file is toward or away from the worker, depending on the grain of the wood, and turning of the work is kept to a minimum. However, it is best to work on an edge which can be seen while keeping the guide line in view. Lightly chamfer the upper arris to prevent splintering of the surface. If arrises are to be strongly rounded, chamfer with file strokes from above, as the file is held pencilwise, and then round by rocking the strokes.



6" Three Square (X.F. Swiss Pattern 00)



10" Patternmaker's Rasp

CHAMFERING

Chamfering is employed as ornament or to reduce wear and scuffing of the edges. Usually the angle is 45°. If your eye is good, work directly. Usually it is safer to make guide lines on surfaces and edges, holding a pencil in the hand and using the fingers to gauge the width. Rough with a rasp and finish with four-in-hand or smaller files, as the case demands. Be careful to follow the grain of the surface, whether plywood or solid is used.

SMOOTHING DOMED SURFACES

To smooth domed surfaces combine rocking motions with a sidewise roll. Strokes can also swing around, following the perimeter. Chamfer deeply, gauge new guide lines, and chamfer the new arrises. Finally, lay aside rasps and adopt files, fairing off the work with overlapping combination strokes which change direction frequently while following the grain. Cardboard templates are useful to check the contours.

CONCAVITIES

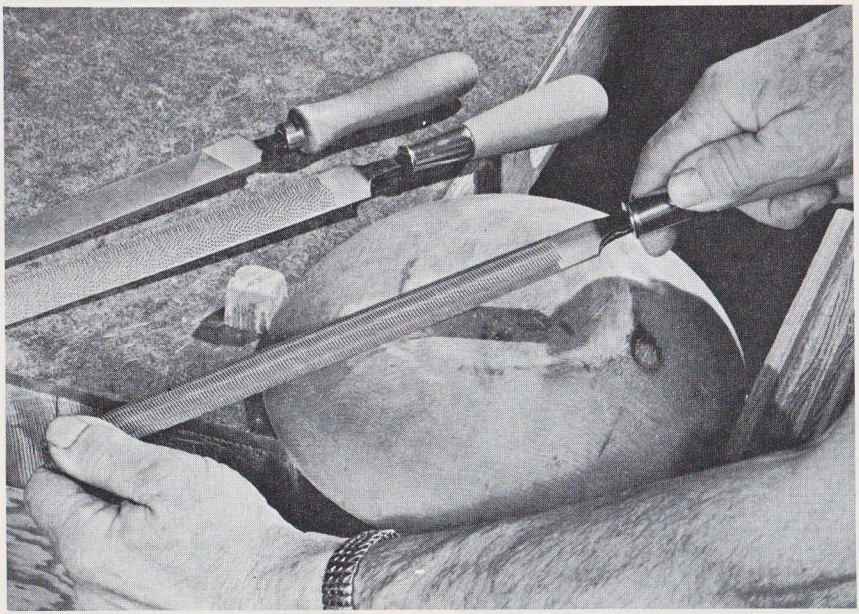
Grooves are shaped with round or half round files. Draw guide lines and saw or chisel vee grooves at the center, rounding with twisting strokes of a rasp. Finish with files.

Smooth band-sawed hollows with files. Check occasionally with a try square blade held parallel to the axis, and if fullness is found at the center, dress it with the end of the rasp or file to straighten it.

Cupped areas are best smoothed with bent rifflers. In large depressions where the curvature of the file is sharper than the work, scrubbing strokes forward and sidewise are needed to prevent the cutting of local pockets. Cardboard templates tried at various angles will discover irregularities before they are too deep to be smoothed out.

KEEP FILES CLEAN

Rap the end of the file on a block often and clean with a file card to prevent choking of the teeth and possible scoring of the work.



10" Half Round Wood File

Making Shop Accessories

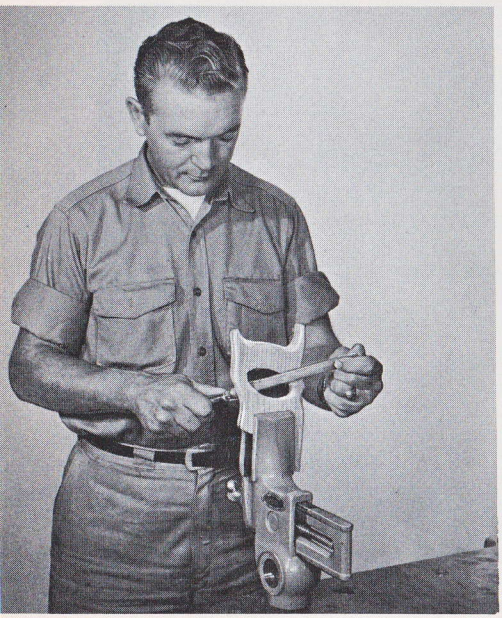
SAW HANDLES

Handles suffer many casualties. Replacements are not always easy to get; and besides, a handle makes a good project for the home shop, involved enough to be interesting, yet quickly made. If you want to duplicate the original handle, lay the old one on paper and trace around it for a pattern. Use birch or other clear, straight-grained hardwood—even plywood, if the plies are uniform in thickness. Band- or jigsaw to outline, saw a blade slit, and bore the screw holes.

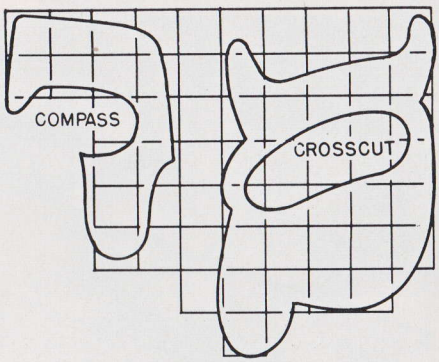
Clamp this blank in a vise and chamfer the edges with a half round rasp and file, such as a four-in-hand or a patternmaker's rasp. Finish with finer files and sandpaper.

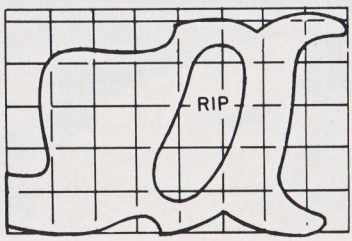
Streamlining characterizes the modern trend. Patterns given in the drawings are current designs, to be copied by sketching through 1-in. squares. If you design your own, use the original hand hole as a starter to retain the saw balance.

Use the sawblade as a template for marking the screw holes, being careful, when scribing, to position the hand hole at the correct angle.



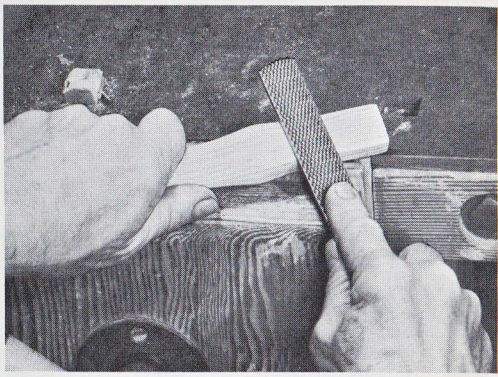
8" Half Round Wood File



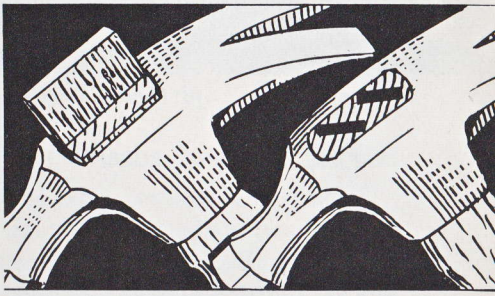


FITTING HAMMER HANDLE

Remove old wood in the hammer eye by boring the center with a twist drill and splitting the wood into the hole. The handle will enter the eye for a short distance, but usually needs working down, an excellent job for files. When it will enter about half-way drive in lightly and remove. Rub marks indicate high spots. Test until the handle fits the eye over most of the surface, then drive in solidly. Trim off shavings curled up by the head, cut off the projecting end, and drive in the wedges. Finish the handle with one or two coats of penetrating sealer.

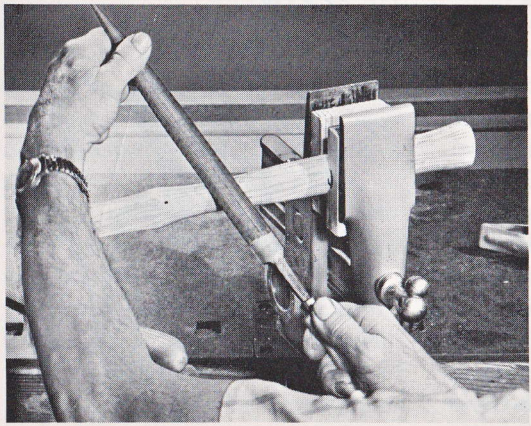


10" 4-in-Hand Rasp

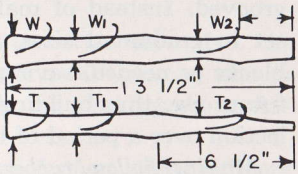


MAKING HANDLE

Make a hammer handle from a split hickory billet, or salvage a broken shovel handle. Rip or plane to rough dimensions, chamfer with a flat wood rasp, and score the neck to depth with the edge of a half round wood rasp. Shape the handle with rocking strokes sliding sidewise toward the center of the neck. Now and then sight along the handle to check for straightness, make corrections, and smooth with files. Fit to the hammer head.

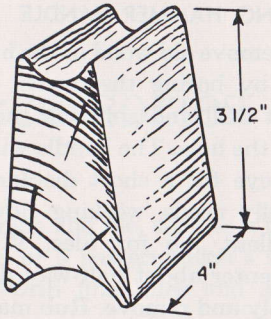


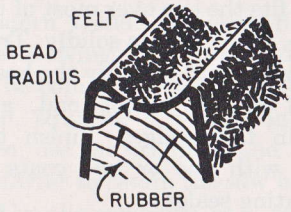
10" Crossing File No. 00



	RIP	FINISH
W	1 1/2 IN.	1 3/8 IN.
W1	1 1/4 IN.	1 1/8 IN.
W2	1 IN.	7/8 IN.
T	1 1/8 IN.	1 1/8 IN.
T1	7/8 IN.	7/8 IN.
T2	5/8 IN.	9/16 IN.

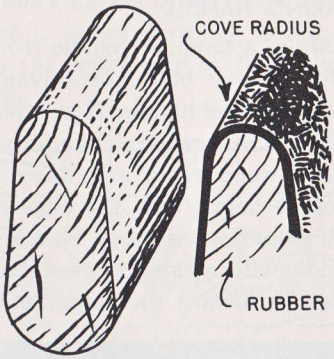
10" Patternmaker's Rasp



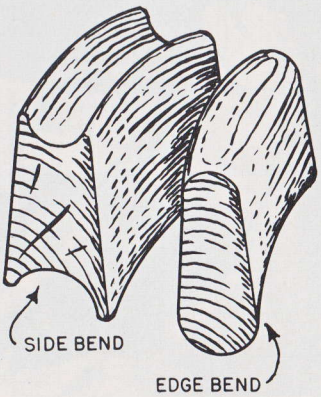


MAKING MOLDING RUBBERS

To smooth a molding, especially if it is hand-made, the sandpaper should be backed with formed blocks called "rubbers." Preferably the profile of the rubber should be the reverse of the molding, in size making allowance for sandpaper and padding thickness. For such molding units as beads, thumb molds, etc., the rubber is grooved. Instead of making up a set in graduated sizes, make the blocks as needed, saving them for future use, thus building up a collection over a period of time.



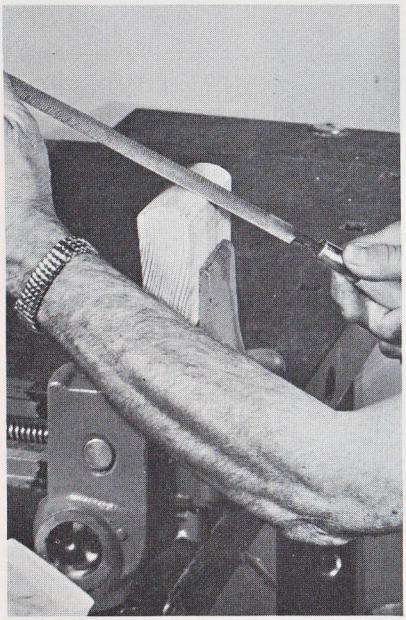
Making hollow rubber. Cut the groove with a gouge or shaper, true up with a half round cabinet rasp and file, or round rasps and files if the groove is narrow. Test the straightness with the blade of a try square now and then. To use the rubber, bend sandpaper over the grooved edge, holding it with



the fingers of the right hand with slack enough to wrap over the molding bead. Rub lengthwise of the molding, swinging the rubber from side to side to cover the width of the work.

Felt, 1/16 in. thick, glued in the groove, improves the sanding action and helps prevent scoring.

about right. Band-saw blocks width-wise, smooth with files, and gouge the grooves. Use a round rasp riffler to shape hollow rubbers, and the half round bastard for smoothing. A vee-grooved rubber, smoothed with a three-square rasp or bastard riffler, is useful on stepped moldings. A square-sec-



10" Patternmaker's Rasp

Bent Riffler—Round Rasp

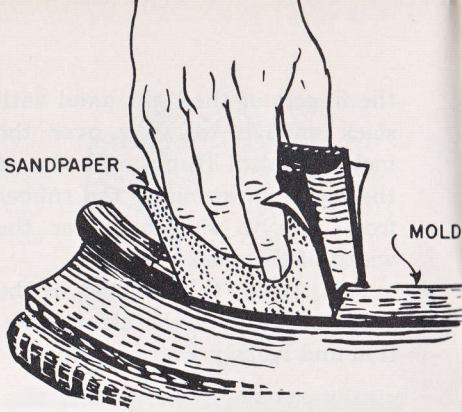
Rubbers for smoothing coves and scotias in moldings are half round on the edges. Rip a block to thickness, chamfer the edges with a rasp, and finish with a file. If padded, reduce the radius of the wood by the thickness of the felt and sandpaper.

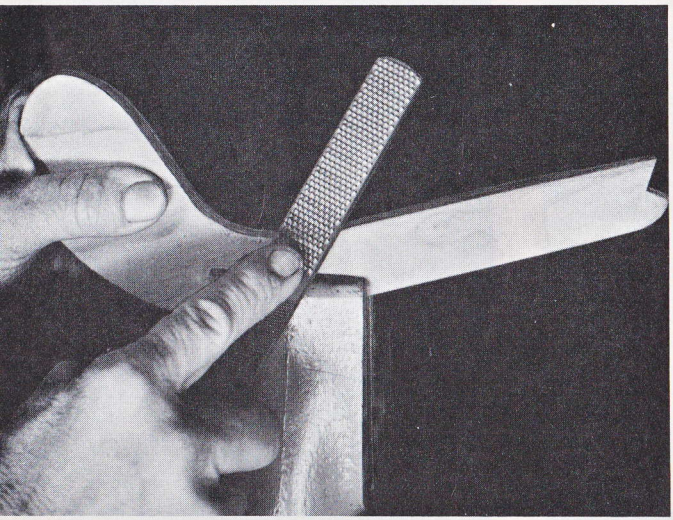
Curved hollow rubbers. Curved moldings are often used in furniture making. Rubbers, to be of much use, must be correspondingly bent. A length of 2 in. is

tioned silversmith's riffler (No. 12) will smooth a 90° groove, and is also handy for working the molding itself.

Bent cove rubbers. Bent rubbers for cove work are band-sawed, chamfered, and rounded. Strips of sandpaper cut 2 in. wide will usually adapt themselves to compound curves without difficulty, but sometimes slitting of the edges is advisable, to allow the tabs to overlap.

Rubbers for curved edge moldings. Sanding the scalloped edges of a piecrust table calls for rubbers curved edgewise rather than sidewise. Rifflers shape these blocks also. Very short rubbers, made on the ends of sticks, are useful in abruptly curved moldings.

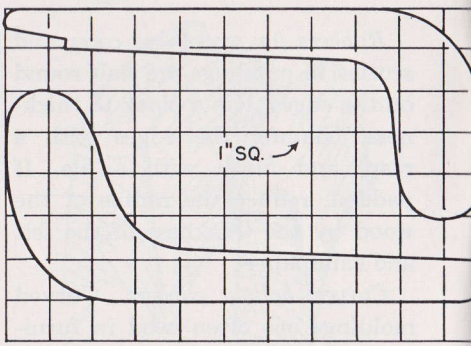




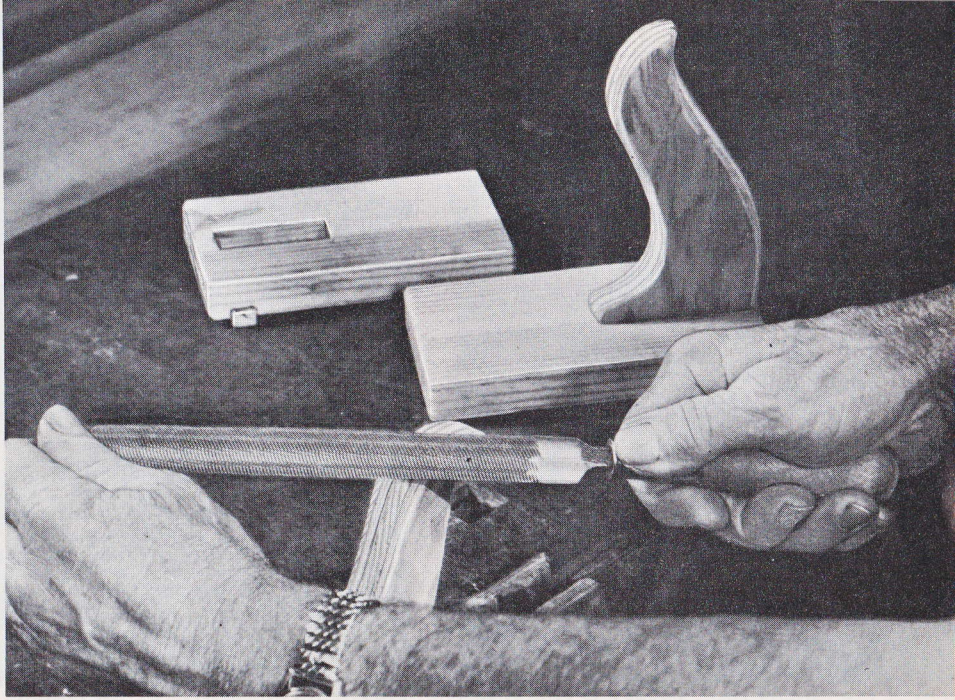
8" 4-in-Hand Rasp

PUSH STICKS

For saws and shapers. Push sticks of various shapes are necessary for the safe operation of power saws, shapers, and other machines. A useful form is the pistol-grip stick, sawed from plywood and smoothed with rounded edges for comfort in handling. This form gives control for pushing and holding down at the same time.

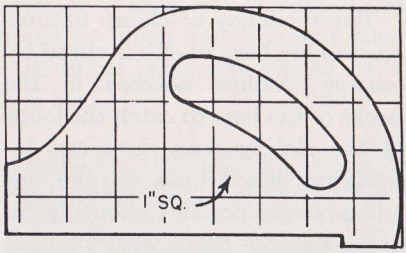


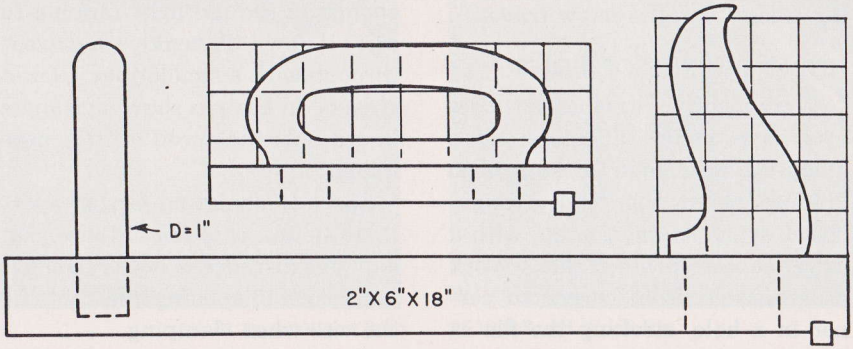
For general work, use a stick made from ¾-in. stock; for working in close places, some as thin as ¼ in. are best.



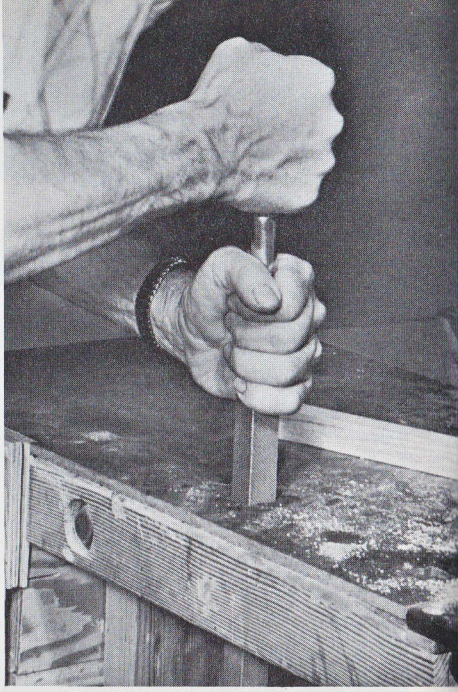
8" Half Round Cabinet File

Jointer mitten. Special push blocks or mittens are desirable for surfacing with a jointer. A short cleated piece of ¾-in. stock for the base with a plane-like handle mortised in is handy for pushing ordinary pieces or for use with short lumber. For thin stock use a base of 2-in. material for rigidity and add a forward handle for the left hand. Shape handles after sawing by the process of chamfering.





8" Round Wood Rasp



16" Square Bastard File

NOTCHING CLAMP BAR

The tendency of clamp fixtures on wooden bars to slip is cured by cutting shallow notches in the backs of the bars to catch the loops of the sliding jaws. Lay out by squaring pencil lines on the bar and saw vee notches about 3/16 in. deep. Enlarge them with a round rasp and file. Break the arrises. Space the notches fairly close together for light duty, farther apart for heavy work. Maximum spacing is less than the screw travel.

FITTING BENCH STOP HOLES

Work benches having tail vises also have a row of square holes along the near edge for stop pins. Having bored the holes, rough-chisel to shape and true up with a large square bastard file. Work progressively from corner to corner in a hole, stroking the file as nearly in a vertical line as it is possible. Having straightened one side, make one side of the file safe by sticking a strip of masking tape to it, running this side against the smoothed side of the hole. This prevents cutting into the finished side. The pin, made of hardwood 1-in. square, 2-in. longer than the bench top thickness, and tapered slightly at one end, is tried in the hole for fit. It should be snug enough to require light tapping to drive it down. To remove it, drive it through with a smaller pin. Glazed streaks on the pin show high spots in the hole that need a little more filing.

Space the holes no farther apart than the travel of the tail-vise jaw; half this distance is better, since it saves time in opening and shutting the vise when clamping.

Lathe Work

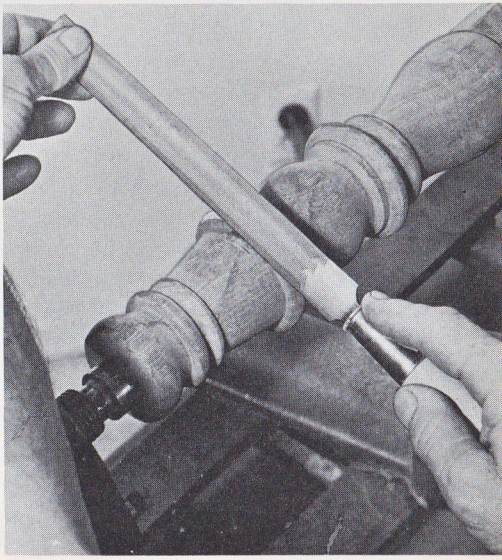
FILING COVE

Turning a cove with a small gouge is a tricky maneuver that requires practice to do well. But the use of a round rasp to reduce the groove to semi-circular form is almost automatic. Stroke it lightly forward to clear the wood dust, keeping the point clear. Smooth with a round file. The tip of the file is useful for intermediate diameters of coves, if carefully held with both hands, one of them well forward. Filing is especially useful for small coves below the usual size of gouges or round-nosed chisels.

FILING BEAD

The occasional wood-turner has difficulty in turning beads. They tend to be lopsided or pointed. Flat files, or half round files used on the flat sides with a rolling motion to left or right beginning with the top of the bead, quickly form the desirable circular or elliptical profile. If the bead is flanked by vee-cuts the sharp edge of the half round file will work into them. A flat file may be better if the bead ends in a shoulder or fillet. Care must be taken not to groove such cylindrical areas with the corner of the file.

8" Round Wood Rasp

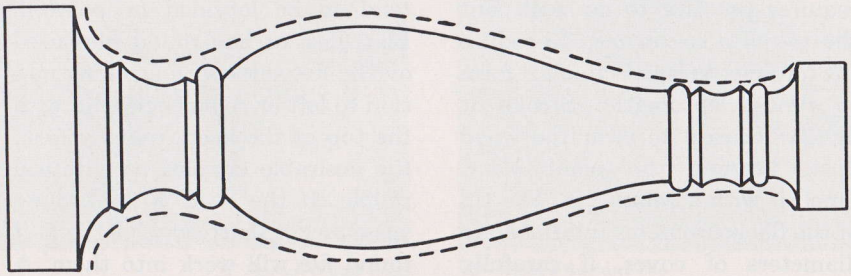


8" Half Round Wood File

DESIGN IN TURNING

While reverse curves look well flowing into one another, as a bead into a cove, most turning ornament should meet another at right angles, or more sharply. In general, the over-all, enveloping profile of a spindle should form a pleasingly flowing line, even when it encloses smaller units "broken" as suggested to give vitality to the design.

Filing effectively smooths such stubborn woods as bird's-eye maple, which can hardly be turned with chisels. Dampening the surface freely improves the cutting.

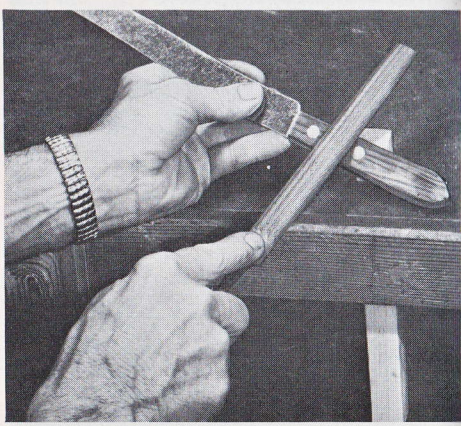


Kitchen Accessories

MAKING KNIFE HANDLES

Most cutlery handles fall into three classes: those for tanged implements, handles slitted from side to side, or occasionally only from one side, and those made in two parts to rivet on. To replace a damaged handle record the shape by tracing, split it off, and drive out rivets if present. Cut the handle blank to over-all dimensions, slit or bore, chamfer, and rough to shape with rasps and files. Rivet handle in place, or force onto the shank, and work to completed form with the file held in one hand. Let strokes slide laterally, with the grain.

Plastic, bone, and horn handles are shaped practically the same.

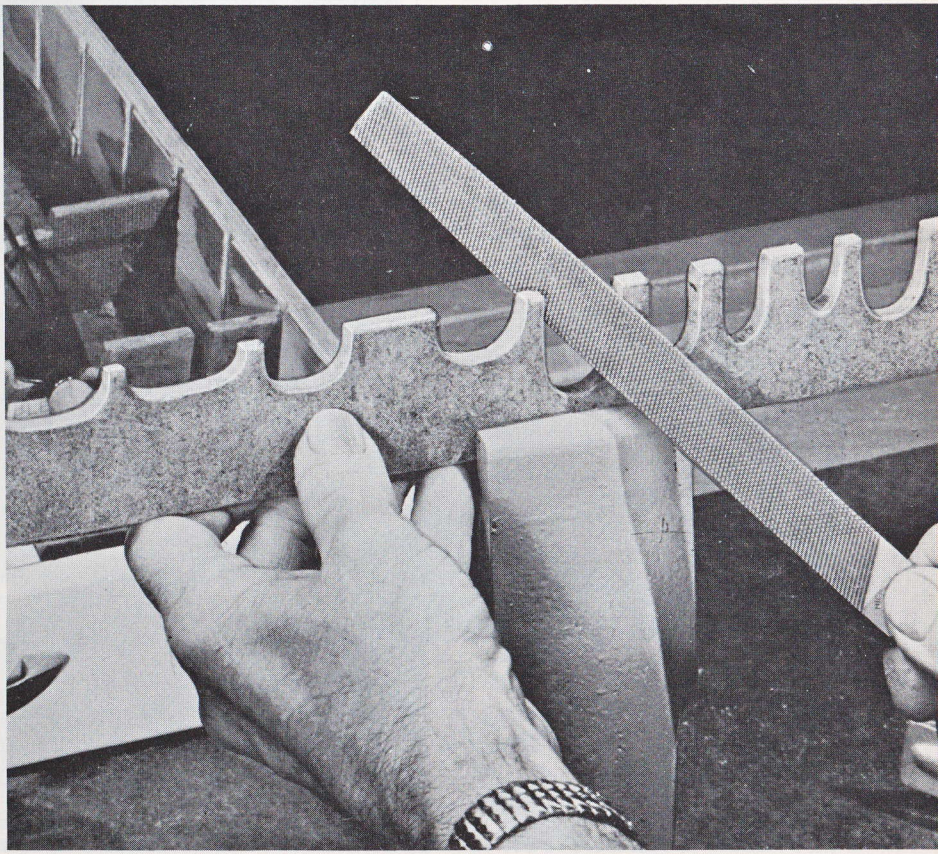


8" Half Round Cabinet File

KNIFE RACKS

The ideal knife drawer is just deep enough to contain the knives, forks, spatulas, etc. to be used at the stove, sink or mixing center of which it is a part. Plywood is stronger than hardboard for use as slotted dividers. To smooth the slots rest the part on a notched support, using the file in a vertical direction as in smoothing pierced scroll-saw work. Avoid splintered divider faces, and nicks in fingers, by rounding arrises with a fine file after sawing, and before the main filing.

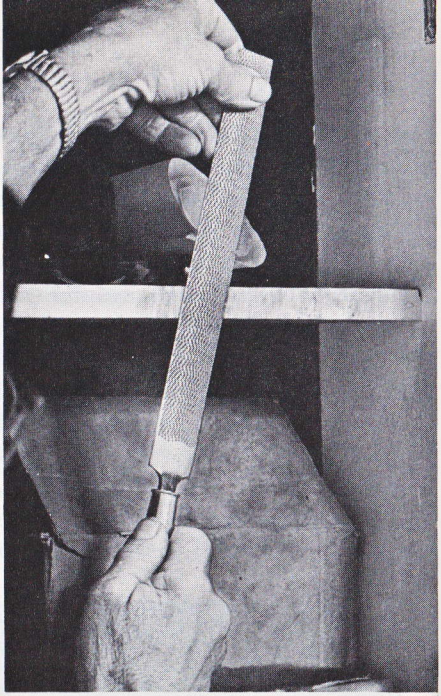
If drawer sides have semi-circular grooves to receive the ends of the racks, round the ends with a rocking motion of file after chamfering with a rasp. If grooves are square, or spurred metal grooves are attached to the sides to support the racks, chamfer the ends lightly and smooth the ends to fit snugly, yet loosely enough for easy removal for cleaning. Give two coats of shellac and rub down with fine steel wool.



8" Half Round Wood File

INTERFERING SHELVES

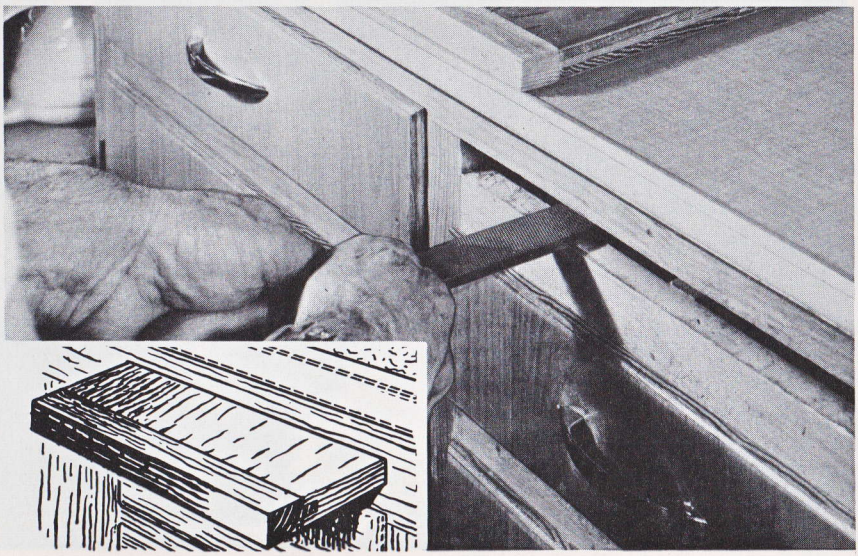
Flush doors sometimes bind against cupboard shelves because hanging stiles of door were not shimmed out sufficiently, the stiles have shrunk, or there is warpage. Whatever the cause, the remedy is simple; file away the front edges of shelves, allowing for repainting, or for the addition of self-cementing hardwood tape to the shelf edges. Gauge a pencil line at least 1/16 in. back from the edge, make a light saw cut at each stile, and rasp with the tool held vertical and pushed up or down and slid sidewise at the same time. Finish with a fine file and back the sandpaper with an unpadded block.



10" Patternmaker's Rasp

CUTTING BOARD OPENING IN SINK APRON

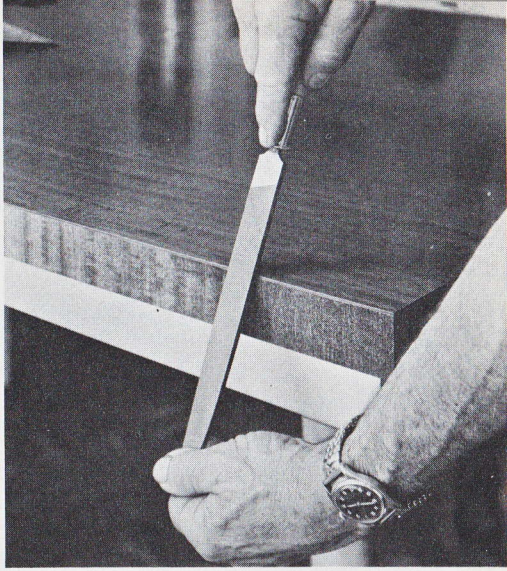
A file is precisely the tool for smoothing a slit in a sink apron to receive a bread or cutting board. If the opening has been sawed straight a little touch-up with a flat file is all that is required. Sand the board glass smooth.



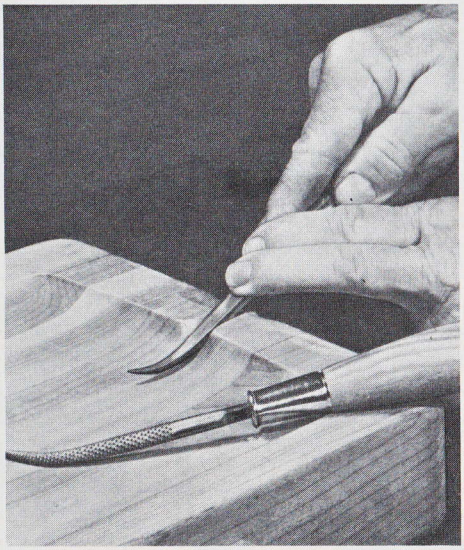
12" Flat Wood File

SMOOTHING PLASTIC EDGES

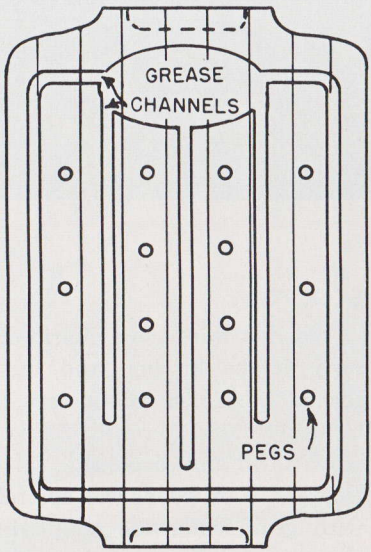
Plastic laminate which has been cemented to a counter or table top can be smoothed along cut edges with diagonally-sliding file strokes directed toward the backing, using the finer-toothed wood files and finishing with an 8″ or 10″ Mill Bastard File. When plastic is banded on a table edge, apply the edges first and file flush with the backing. Cement the top laminate in place and dress off the overhanging edges, flush with the edge bands but sloping back a few degrees to blunt the angle.



10″ Mill Bastard

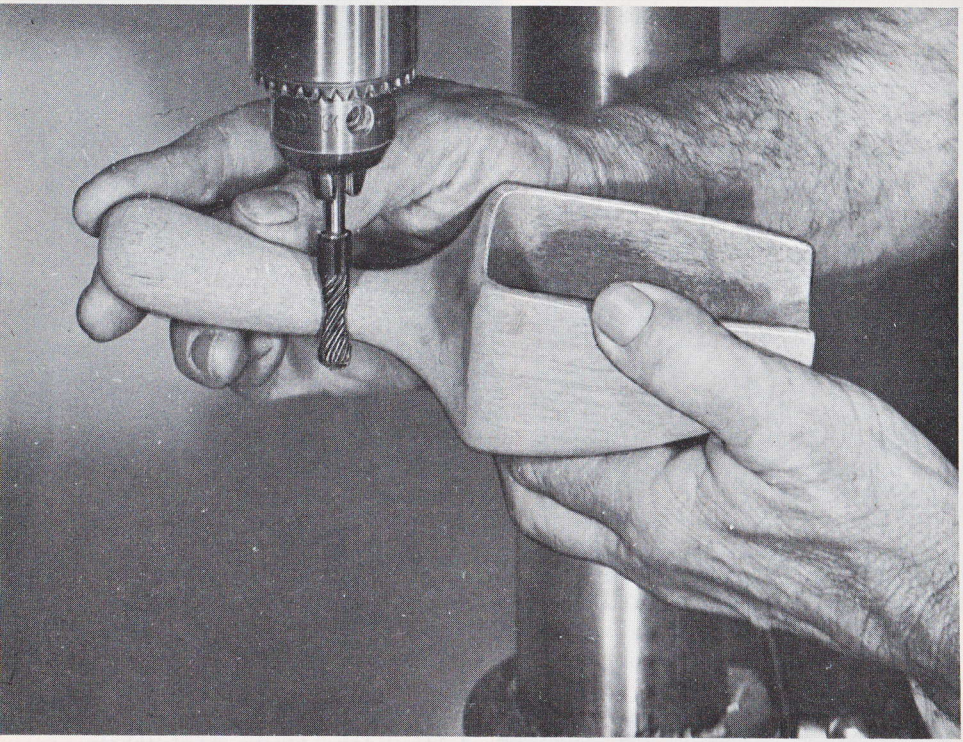


Bent Riffler—Half Round Bastard



CHANNELING MEAT PLANKS

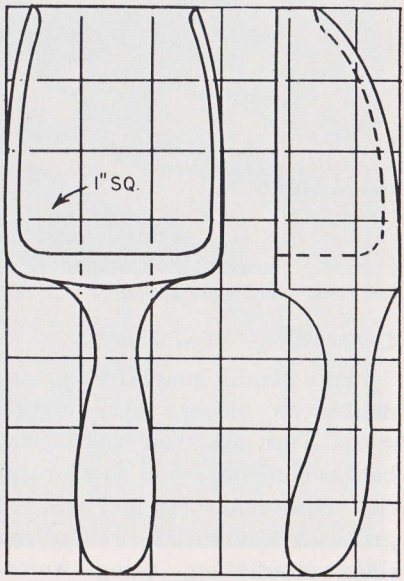
Meat planks, made heavy, can double as blocks for pounding steak. Turn over and use the flat backs. Hard maple is good material. Glue up in strips laid with the grain vertical, with heart and sap sides alternating, using waterproof glue of the urea type. Smooth grease channels and handles with bent rifflers and other wood files and rasps of shapes suited to the work. Salad oil is recommended as a finish, to be rubbed in repeatedly, especially after cleaning.



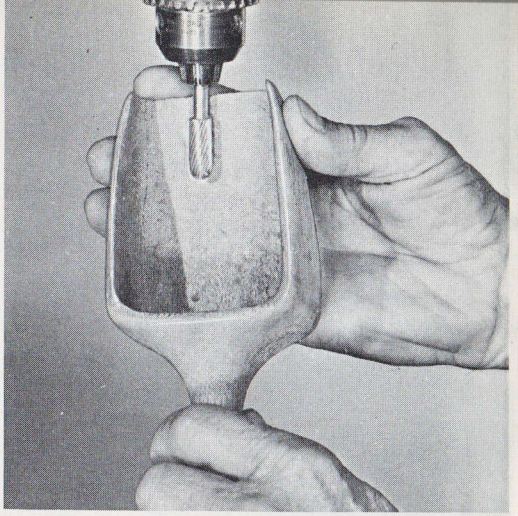
Bi-Shape Ground Bur Style Y5Q

SCOOPS

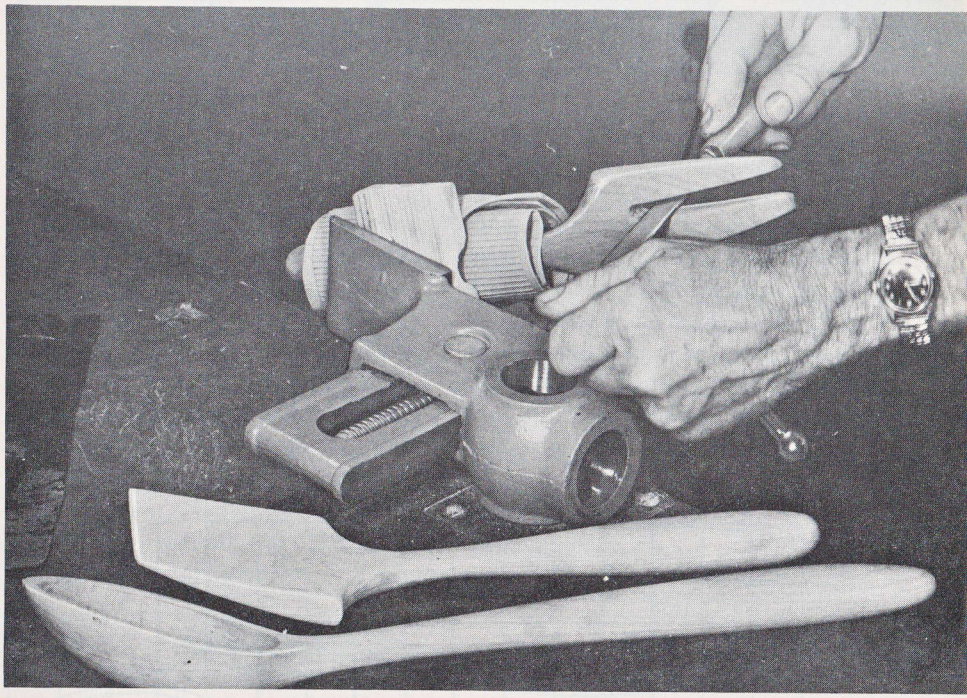
Wooden ware has a charm of its own in the kitchen and for informal table use. Scoops are particularly useful items for filling the sugar bowl and dispensing salt for freezers. Hardwoods well splotched with grain color are adapted for these pieces. Lay out the plan on the wide face of the block, the profile on a narrow side, and bandsaw both ways. The outside shaping can be done almost entirely with narrow-waisted ball-nose rotary files for the larger convex curves and the concave style for rounding off arrises and working around the handle.



Bore out the waste wood of the scoop with a router or an auger bit, preferably one with most of the center point cut off, permitting boring almost to finished depth. Set the drill-press depth stop and true sides and back with a tree-shaped radius end, or for straighter lines, a radius-end cylindrical burr. Feed the work freehand against rotation, using fast, light passes to prevent digging in. A light played along the side being worked shows up irregularities.



Radius End Cylindrical Ground—P5P



6" Mill Bastard—Two Round Edges

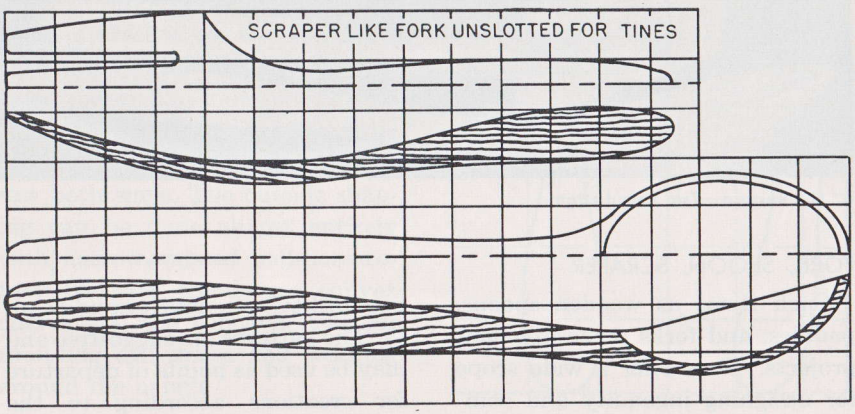
FORK, SPOON, SCRAPER

Such items as wooden spoons, paddles, and forks make excellent projects. They offer a wide scope for designing ingenuity and combine utility with novelty and beauty. The patterns are suggestive and may be used as points of departure for creations according to the

Oval Ground Bur Style R7M

craftsman's fancy. Align the grain of the wood with the more slender parts of handle and fork tines. Two pieces joined, or stock laminated from strips to give strength, also add interest through the contrasts of color and grain. If expense can be hurdled the handsomer rare woods such as rosewood, cocobola, and even ebony can be chosen for deluxe sets.

Band- or scroll-saw the outline on the block; nail the pieces together with brads driven in waste wood, and saw out the thickness contour. After this work to shape with wood or cabinet rasps and files, using the techniques of chamfering and rounding edges. A wide variety of files are suitable, de-



pending on the shapes to be formed, and a good assortment of these tools will save time and yield pleasure in the labor of creative crafting. A good finisher for the fork is a 6″ double round edge bastard mill file. Clamping in the vise is effected by means of wooden vee blocks. Use padding as work nears completion to prevent scarring the smoothed surfaces.

After gouging out the bowl of the spoon most of the preparation for sanding the inside can be accomplished with an oval ground bur style R7M at highest speed in the drill press, making light, fast criss-crossing passes.

SALAD BOWLS

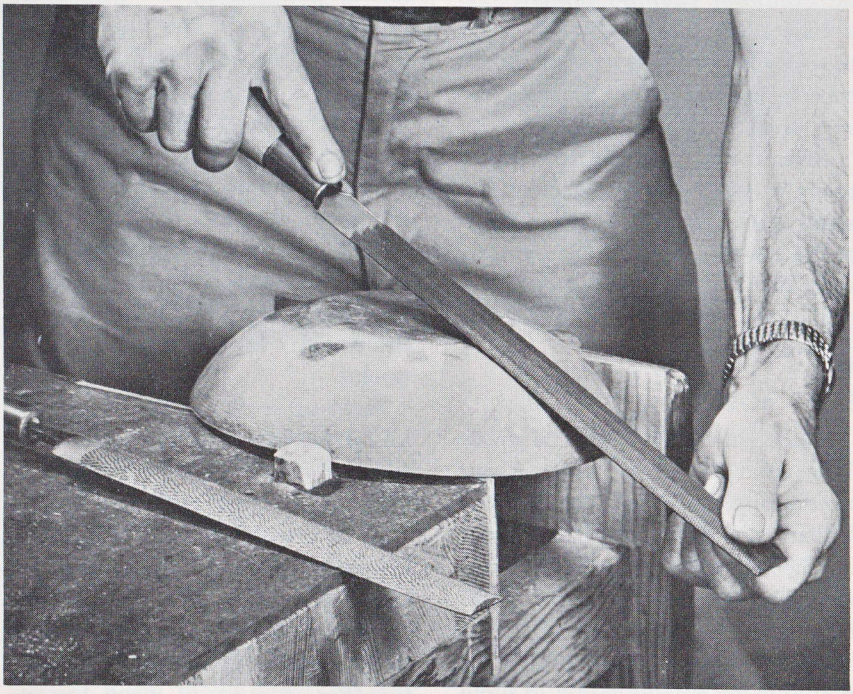
While salad bowls can be made from solid blocks of wood, there are definite disadvantages, for it is difficult to obtain large blocks of the better woods, and solid construction invites checking and warping. If a large billet of fruit wood, such as apple or orange, is available, or a good chunk of olive or walnut, saw, chop, and bore to a rough form, smooth down to approximate size with rasps, and coat generously with shellac to seal it. As an extra precaution it is sometimes wise to clamp a stiff, perforated board across the top.

Lay this somewhere, such as under the house, in a cool circulation of air for several weeks. Inspect occasionally, and recoat any places where the shellac may have pealed. The thinned wood seasons much faster than a large billet, yet the action is so gradual and uniform that checks are unlikely, and warping is held to a minimum. Be sure to allow ample seasoning time. A rough test of condition is to free the piece from clamps and forms, grasp it by an edge, and rap sharply with the knuckles. If a clear, somewhat ringing tone is obtained, it should be dry enough to finish. By applying this test from time to time as inspected, the progress of seasoning can be noted. Even so, store the finished bowl carefully, avoid immersing in water, and keep it where abrupt changes of temperature are not encountered, at least for several weeks.

Built-up bowls can be made from kiln-dried stock in three different ways: By building up in layers, in profiled sections running lengthwise or crosswise; with horizontal layers; by scroll-sawing from a single board, or more, if needed, cutting lifts with the saw table tilted enough to wedge the pieces together in spite of wood lost in sawdust; or by wedge sections, also roughly profiled, but with flat steps or projections for use in clamping. Built-up construction permits the use of woods of contrasting colors, giving inlaid effects.

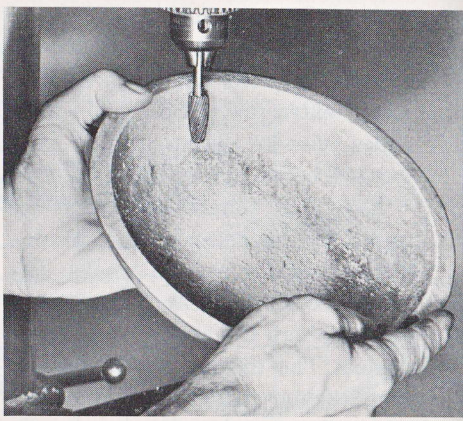
Shaping outside. Hold the bowl for shaping the outside by clamping it between a bench stop and vise stop. Avoid distorting it with too much pressure. Chisel off the clamping lugs and rough down with a large flat rasp. When well formed and cut down almost to

the intersections at the glue joints work it over with a finer rasp, and finally with a file. Flutes and beads can be laid out in pencil, using a strip of cardboard or thin wood as a straightedge. Score with the edge of a half-round rasp and work up the beads or flutes with rasps and files. Rifflers are useful in junctions between rim, bowl, and handles.

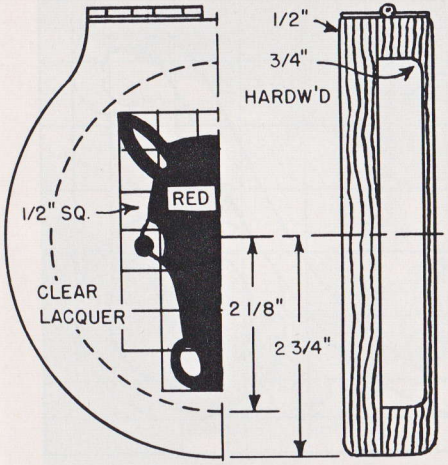


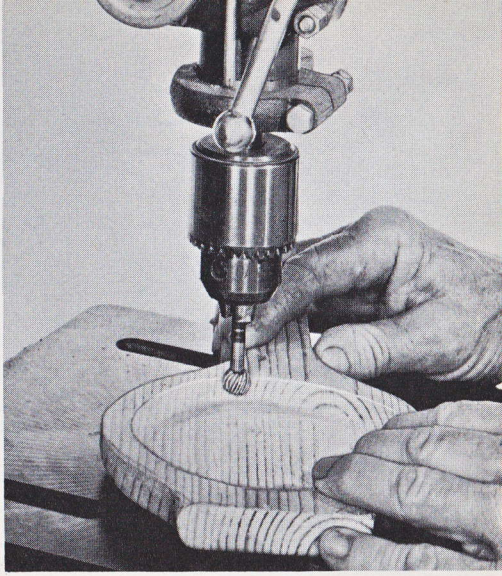
12" Half Round Wood File

Smoothing inside. The bowl can be roughed inside with a tree shape radial end ground bur, Style S7Q, or if the curve is too sharp to reach, a cylindrical shape double taper, Style "RR". If the bowl is built in lifts, work down the angles to the joint intersections, which act as guides. Bent rasp and bent half round rasp rifflers used with scrubbing strokes from various directions are useful for final smoothing.



Tree Shape Radius End Ground—Style S7Q





Ball Shape Ground Bur—Style Q7

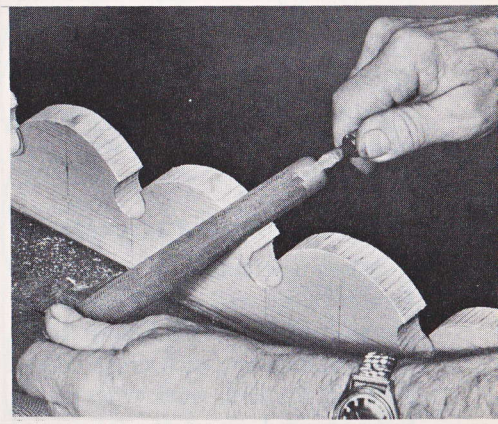
MAKING HAMBURGER PRESS

A hamburger press is first-aid to the quick snack, just the thing for use in hurry-up meals or sessions around the barbecue. Drop a ball of ground meat into one side, squeeze together, and remove the flattened cake, ready for perfect frying. Use hardwood, band-saw the sides in pairs, and rough-hollow with drill press. Shape the edges of the cavity with a ball shape ground bur Style Q7. Slide the press side on the drill press table, the quill locked in position.

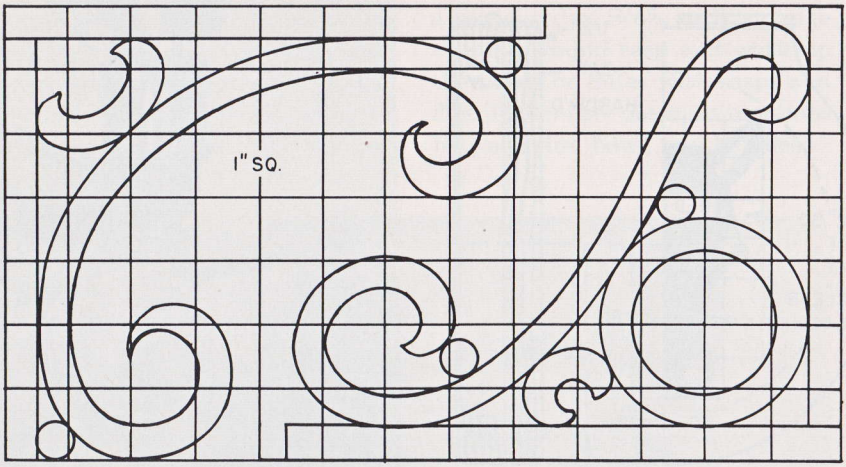
House, Furniture, Built-Ins

CORNICE BOXES

Profiled cornice boxes are in keeping with traditional furniture, and are quickly made if a band saw is available, as three or four can be cut at a time. When smoothing the edges with rasps and files maintain flowing lines and keep the angles at the breaks sharp. A touch-up with fine-toothed files reduces sanding time to a minimum. Files can be used to true the miter joints before and after assembly.

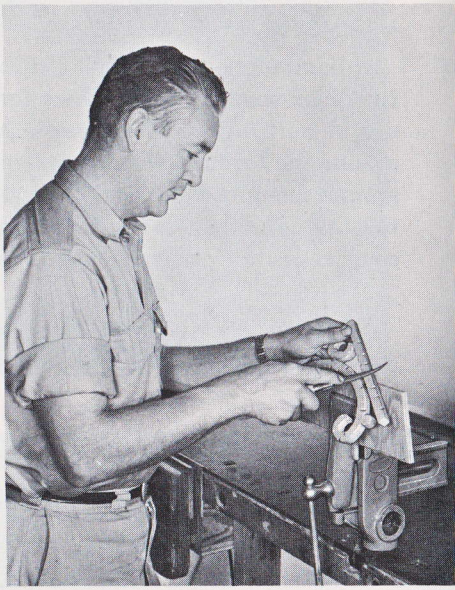


8" Half Round Wood File



BRACKETS

Jigsawed brackets painted black in imitation of wrought iron find application in such furniture as drapery cranes, lamp stands, and what-nots. If the design is such that the grain of solid wood crosses many slender details choose plywood for the project. Smooth the edges over the notched support, using the files with vertical strokes, and break the arrises strongly. To obtain a forged effect, dent the faces and edges at fairly uniform intervals with the rounded side of a bent riffler. Sand them with fine garnet paper backed with the finger tips.



Bent Riffler—Half Round Bastard

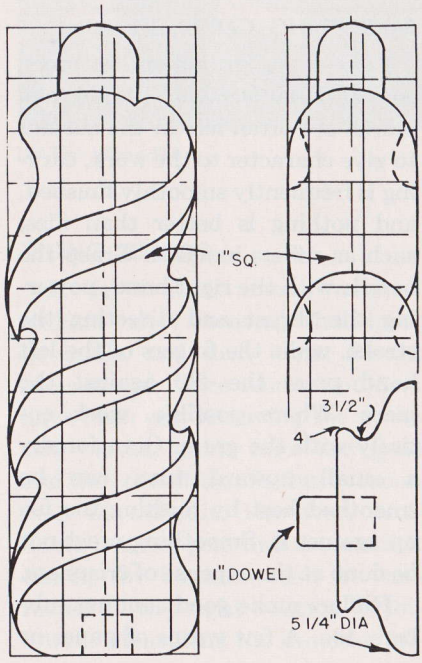
BEADING FURNITURE SQUARES

Mission adaptations of Spanish furniture, as well as many similar types, make use of square table legs ornamented with cross beads. Lay out for such work with pencil lines squared across the faces, girdling the squares with due regard for good proportion and the joining of stretchers and aprons. Cut the vee-centers with a saw and chamfer the bead ends with a coarse rasp. Finish with files.

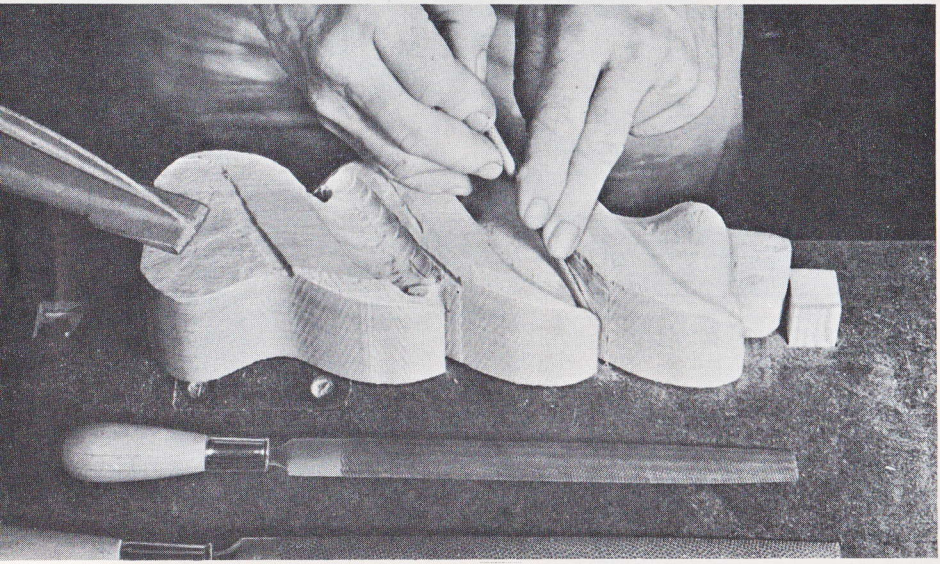
10" Half Round Wood File

LAMP BASES

The present taste for free forms in furniture gives opportunity for bold designs, especially in such pieces as lamp bases. Technics used are much like those employed in making stirring spoons and salad sets—the outline is sawed from one direction, waste blocks are replaced by nailing into wood that will cut away, and the object is cut out again from an adjacent side. Occasionally corners can be sawed off with a band saw after sketching on the sides. From that point the work is carried forward principally with rasps and files, guided by the eye, until an acceptable form is achieved. Since this has a certain resemblance to modeling, it is sometimes started with a bare idea



of the shape to be, the details being worked out as the job progresses and the conception grows. The keynote of design should be simplicity. Make full use of grain patterns in the wood.

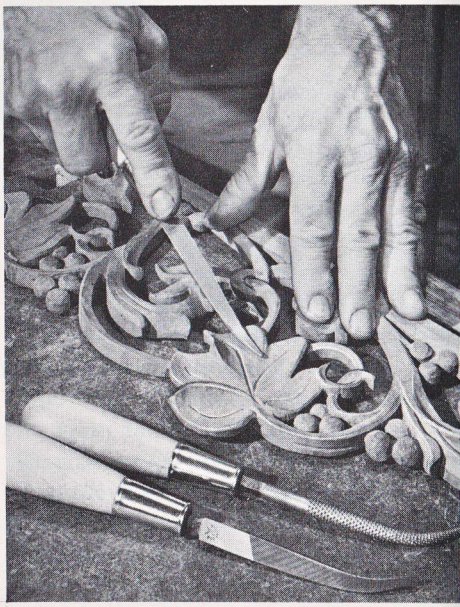


8" Round Wood Rasp

SMOOTHING CARVING

Leaves are prominent in much conventional carving. While tool marks are often left in the surface to give character to the work, carving is frequently smoothly finished, and nothing is better than files, such as rifflers handled. Grasp the handle with the right hand, powering the thrust and directing the stroke, while the fingers of the left hand press the file against the piece. Where possible, work entirely with the grain. Occasionally a small upward turn can be smoothed best by pushing the file up against it. Smoothing must not be done at the expense of crispness.

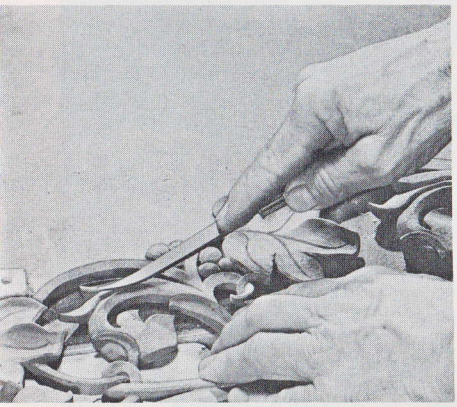
Rifflers make good sanding rubbers, too. A few wraps of paper or



Bent Riffler—Half Round Bastard

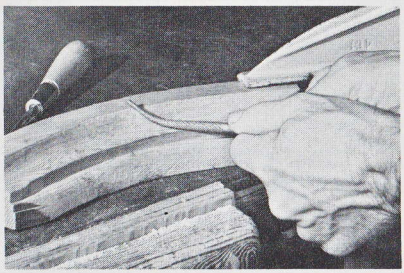
cloth soften their surfaces for sympathetic smoothing.

Files are useful for smoothing the background of strap work and bas-relief carving, as well as for shaping details.



Bent Riffler—Three Square Bastard

Veining. Vee-form veining can be smoothed with the three-square bent riffler. Hold the tip lightly in the groove with the fingers of the left hand, carefully tracing the cut.

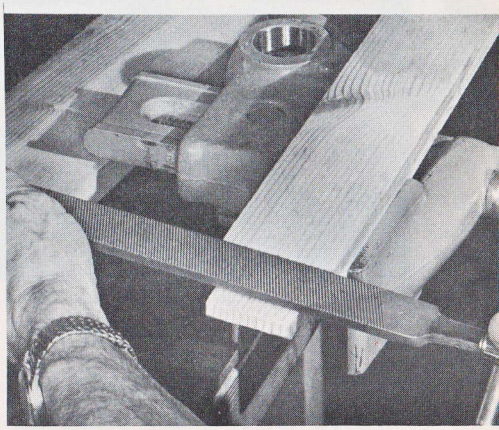


Bent Riffler—Round Rasp

MAKING MOLDINGS

Because molding equipment may not be at hand, moldings are often made by hand; and moldings included in carving must usually be done mostly by hand. Files remove the need of working to great accuracy with chisels. A few strokes of a flat file on a beaded surface, or of a half round file in coves and scotias will usually bring up the desired molding. Bent rifflers excel in smoothing moldings having compound curves.

Sand with fine-grit papers, using shaped rubbing blocks for backing.

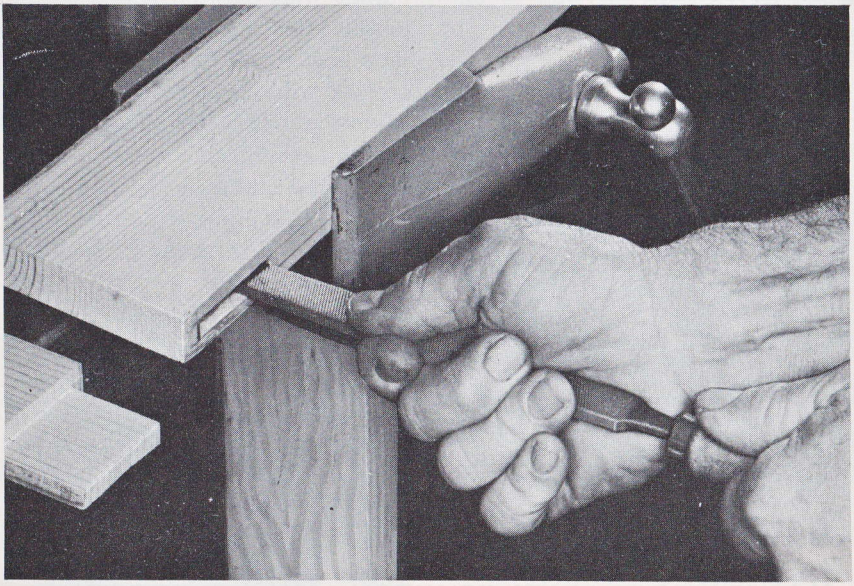


12" Flat Wood File

TRUING TENONS

It is a rule among cabinet makers that tenons, half-laps, dovetails, and such joints should fit as sawed. Once tenon shoulders have been cut, removing the waste side blocks, guide lines are gone and the correcting of a faulty tenon may be difficult. However, accidents will happen, and a too-thick tenon, for instance, can be corrected if the right routine is followed. Measuring the shoulder off-

set will show which side of the tenon should be pared, and sighting from the end to check alignment with the faces of the piece will reveal high spots, which can be marked with a pencil and flattened with rasp and file strokes. Chamfer the tenon end lightly.



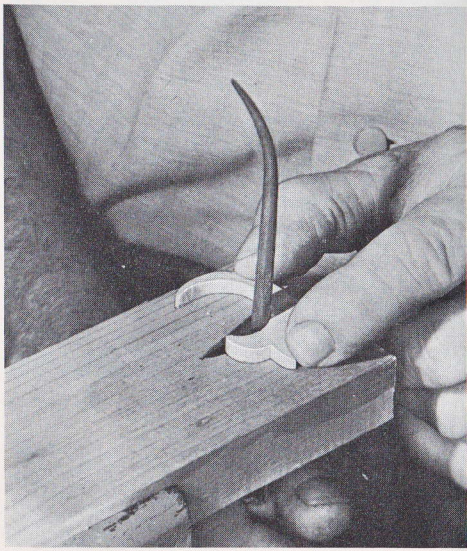
8" Flat Wood File

FINISHING BORED MORTISES

Bored mortises are commonly smoothed at the sides with a wide chisel. A going over with rasp and file, by truing and smoothing the mortise sides, and eliminating splinters, adds much strength to the glue joint.

SMOOTHING INLAYS

True inlaying consists of fitting a jigsawed piece of wood, metal, mother-of-pearl, or other material into a mortise so that the piece is flush with the ground. It is a method well adapted to hand sawing, where the edges often need to be smoothed, especially since the

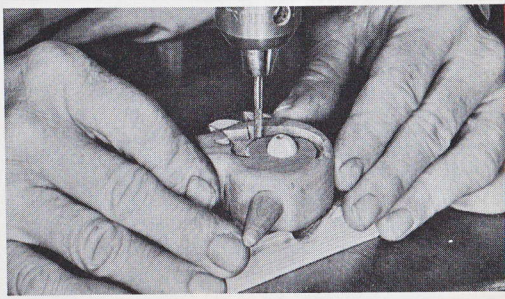


Bent Riffler—Half Round Bastard

inlay may be nearly ⅛ in. in thickness. Rest the inlay on a small vee-slotted support and dress the edges with a fine file, undercutting a little by inclining the tool to give a little wedging in the mortise.

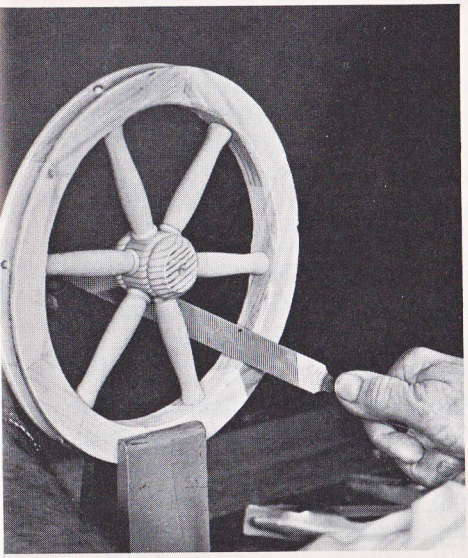
MORTISING FOR INLAY

Hold the inlay in position on the ground and trace around it with a sharp, hard pencil. Rout out the mortise to a little less than the depth of the inlay thickness, using a machine router or drill press or a chisel. Cut out the center, working toward the edges. When the line is approached lay the inlay in place and give firm pressure with a block and clamp, which makes an exact imprint of the inlay in the undersize edges of the mortise. Trim to this imprint, and the inlay should wedge in so tightly that the joint will be visible only because of color contrast and difference in grain in the inlay and ground.



Radius End Cylindrical Ground Bur—Style 4P1J

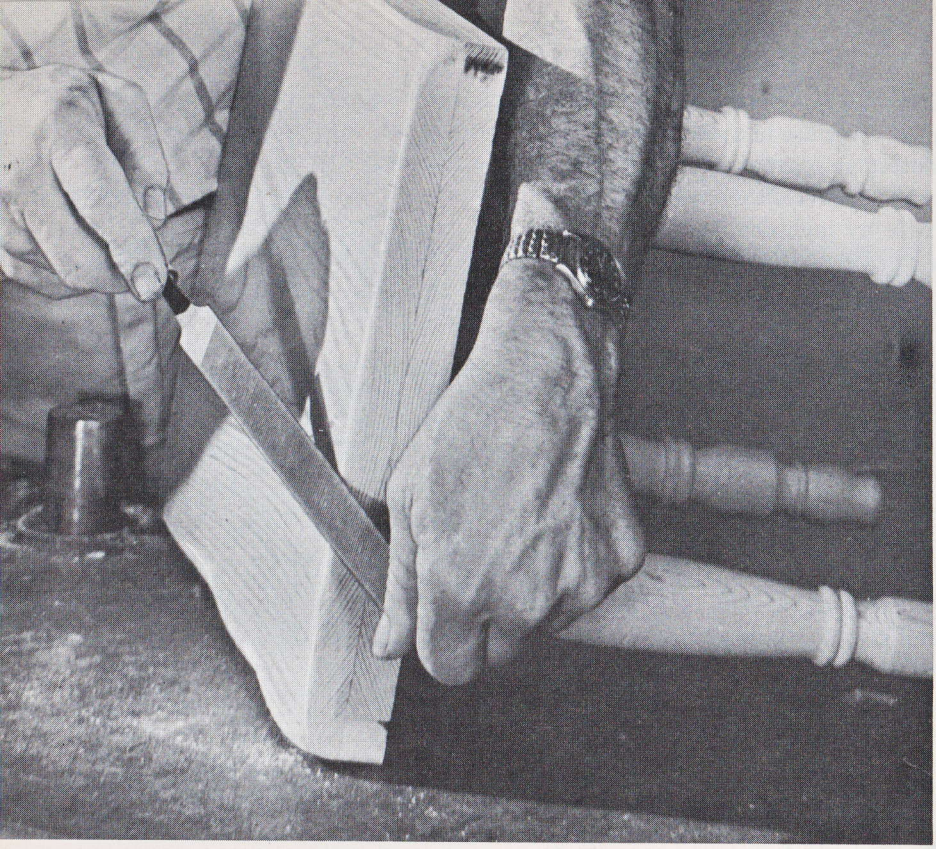
Smooth the bottom of a chiseled mortise with riffler files. The points will work into the inlets of the mortise.



8" Half Round Cabinet File

MAKING WHEEL FELLY

Fellies of wheels for tea wagons are sometimes cut entire from plywood or built up, three-ply, with overlapping segments. When built of solid segments to be doweled together, shape one and use it as a pattern for tracing the others. As there is usually some need of truing the segments after the wheel is assembled, the inner edges are best rasped and filed to the line where the spokes enter, leaving stock to work on when the joints are dressed. Round off the inner arrises between spokes, tapering the ends and merely breaking the arrises at the spokes.



12" Half Round Cabinet File

"WEARING" FURNITURE EDGES

Furniture built to give the appearance of age is rounded on edges normally exposed to wear, dented by driving the sides of bent nails into the surface to simulate worm holes, and checked by scratching with an awl. The worn edges are located where arms are leaned on and rubbed, where table legs are pressed by knees, and where feet might be parked on stretchers. These rounded arrises must be shaped in an irregular fashion, with dips proportional in depth to their length. Some worn spots overlap. All curves blend smoothly. A good method is to cut chamfers with a rasp, round off with a finer rasp, and finish with a file applied with rocking strokes. Finish by sanding with a fine grit.

Checks, scratched in by dragging an awl or ice pick along the grain, are cut at chosen places, improving on nature by regulating the length and spacing, detouring around knots, entering holes bored for "through" dowels, etc. Most checks occur at the ends of aprons and stretchers, in leg beads, and like places. Clean the scratches with a three-square bastard riffler.

FITTING MITERED CASINGS

Mitered door and window casings may fail to fit at mitered joints for one or more of three reasons: 1, because cut out of true; 2, because the jamb is out of plumb; 3, because the plaster projects or recedes from the edge of the jamb, requiring hopper cuts. If the cut is out of true, or the frame is out of square, a light cut taken with the flat of a file, removing a little from the heel or toe of the miter, is probably enough. A slight undercut usually helps, bringing the ends tightly together at the molded surface. This can be made with the half round face of a file to keep it away from the edges, a difficult thing to do with a block plane.

If the plaster bulges, trim the heels of the cuts; if it recedes, pare the toes.

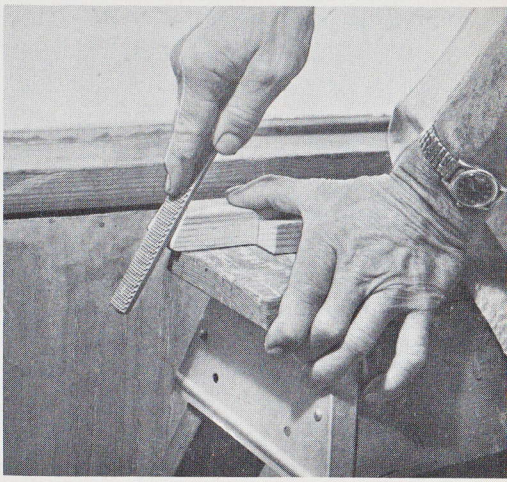
Sometimes casings vary in thickness. This can be corrected by dressing the back of the thick piece with a rasp; or if the pair is nailed in place before the variation in thickness is discovered, the faces can be trimmed flush with rifflers, followed by sanding. If the molding profiles differ, the adjustment must be made on the faces, usually after nailing up the pieces.

FITTING WINDOW STOOLS

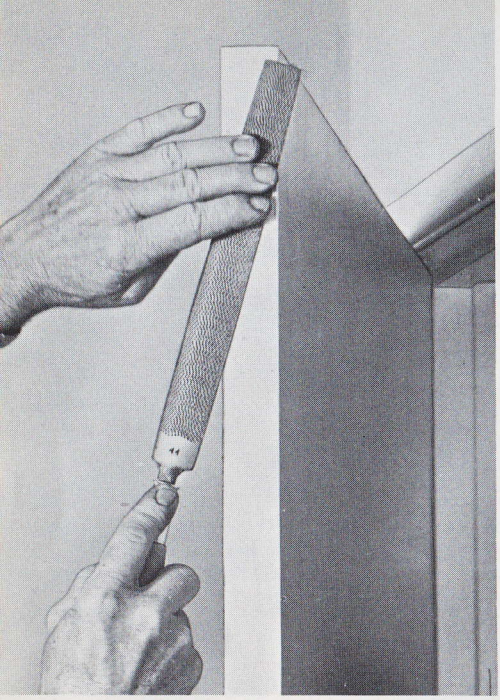
Window stools must be fitted not only between jambs but against the plaster. After scribing and sawing the projecting ends further fitting can be done by relieving the high spots with a rasp

8" Half Round Cabinet File

to improve the contact with the wall. "Return" the ends of the stool by sawing it to the profile of the edge mold with a coping saw, and smooth with a file. Use a scrap of molding to trace the pattern of the end cut on the back edge. Dress rough spots in the molding with a file, preliminary to sanding.



8" 4-in-Hand Rasp

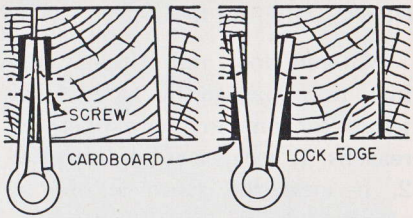


10" Patternmaker's Rasp

CURING BINDING DOORS

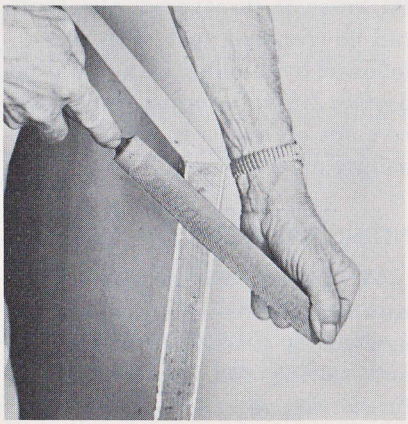
Rubbing top. If the top of a door rubs at the lock edge, try loosening the screws of the upper hinge to slip a cardboard shim behind the door leaf between the screws and the near edge of the mortise. This throws the door toward the lock edge at the top, slightly lowering the upper corner. If the top still rubs, place a shim behind the lower hinge leaf, back of the screws, drawing the door toward the hinge jamb there and further dropping the rubbing corner. Failing in this, use a rasp on the tight corner, protecting the faces of the door from slivering by first chamfering slightly with a file. Smooth the rasped part with a file.

If the upper lock edge rubs, retract the door by shimming the



upper hinge behind the screws. The jamb leaf can also be shimmed. If the edge must be dressed, rough off the paint with a fine rasp and work down in a tapering cut until the door will close freely. Smooth off with a file. Remember that the edge must be slightly beveled toward the stop side to offset the radial swing of the edge when opening and closing. There must be enough wood taken off to allow for the paint.

Binding edge at bottom. Shim the hinges behind the screws, and if necessary, rasp and file the binding part of the edge as described before. When a door rubs on the lower end remove the hinge pins, lift off the door, and rest it on the hinge edge while rasping and filing the rubbing part.

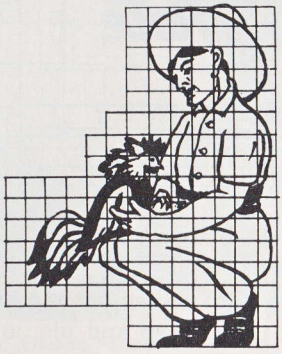


10" Patternmaker's Rasp

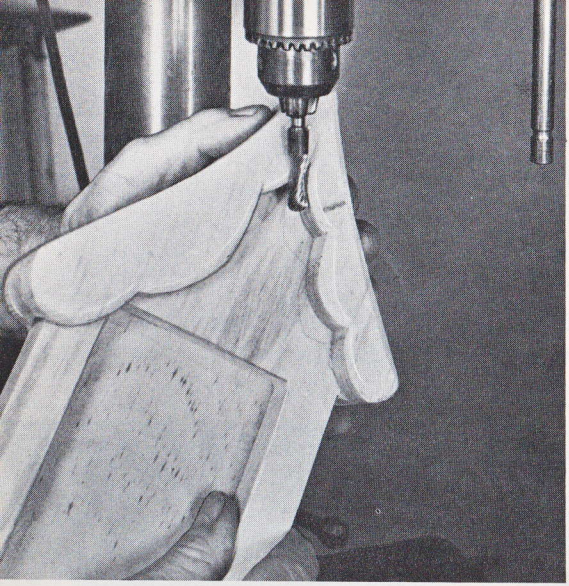
Garden and Farm

GARDEN CUTOUTS

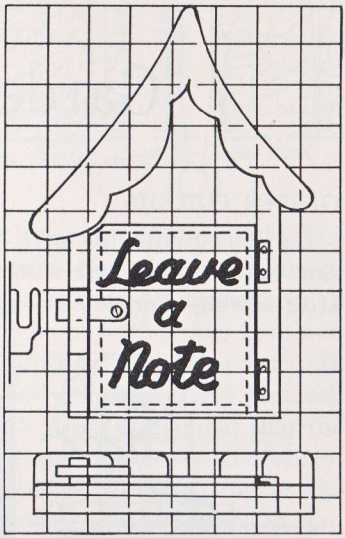
Garden cutouts, the work of jigsaw enthusiasts, need smoothing after sawing. For defense against weathering give a pronounced roll to the edges with rasps and files to insure a good armor of paint.



8" Half Round Wood File



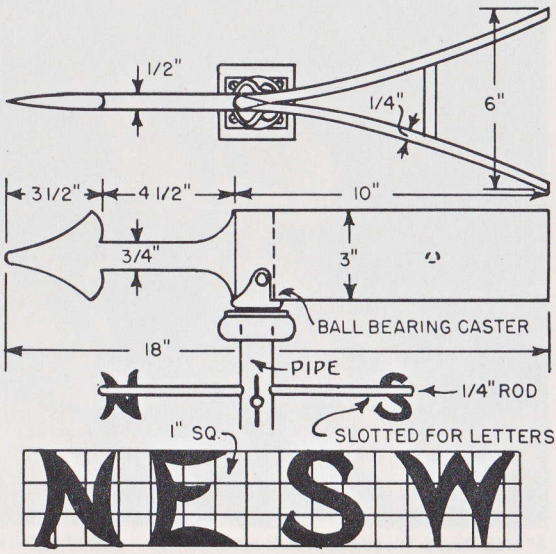
Bi-Shape Ground Bur—Style Y5Q

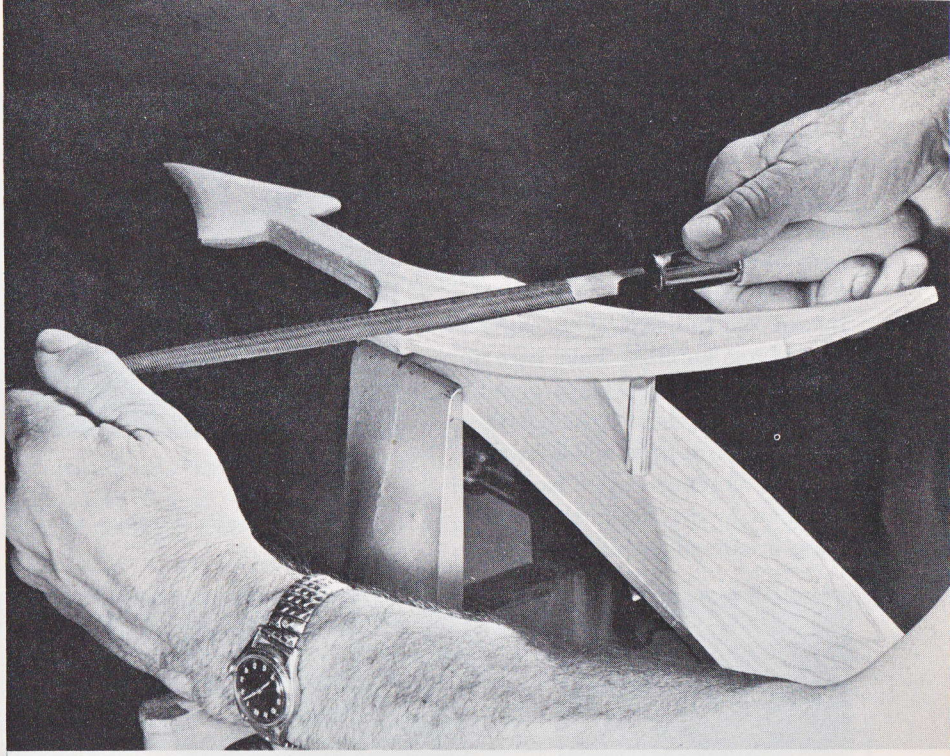


LEAVE-A-NOTE BOX

These boxes are endless in variety. A touch of fairy-tale fantasy adds interest to such trifles. A simple construction is to band-saw a Hansel and Gretel house from a block of pine, smoothing the roof and sides with sweeping motions of a half round rasp and file, and work in shingle courses by scoring with the corner and afterward filing the tapered offsets with the flat of a rasp or file.

WEATHER VANE



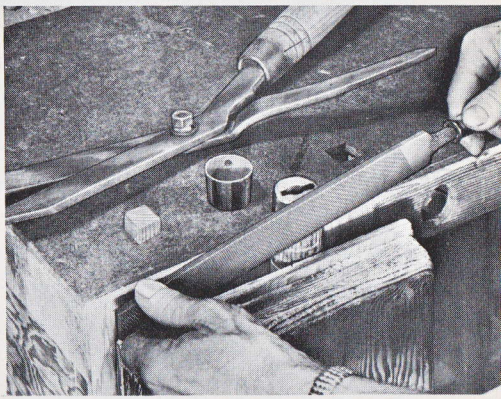


10" Crossing File No. 0

While a scroll-sawed weather vane looks well the flaring tail variety chosen by the weatherman is more responsive to light breezes. Band-saw the curves in the tail pieces, smooth with files, and assemble with waterproof glue. Touch up here and there as needed, rounding off corners with files, install the bearing, and sand smooth.

HEDGE SHEAR HANDLES

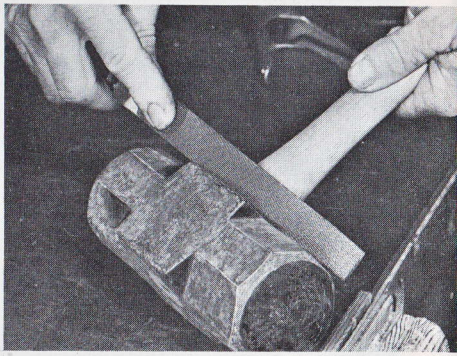
As shovel handles usually break near the metal there is ample material in a broken handle to replace one in hedge shears. Bore out the ferrule if the damaged handle cannot be pulled out. Taper the piece by filing flats of equal width all around and then rounding the corners to make the end fit. A flat rasp and file will do all the work. To reduce the size of the entire handle file equal flats equally spaced full length.



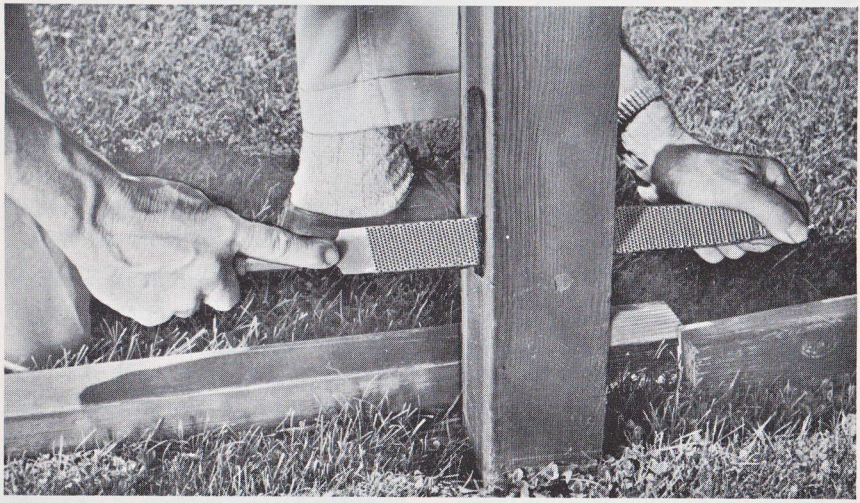
12" Flat Wood File

REPLACING SLEDGE HANDLE

Sledge handles are vulnerable to damage because of overreaching and bringing the handle down on the object to be struck. Usually a new handle can be fitted with a few rasp strokes, the handle being turned continually. The same is true of axe handles. Take care not to file too long in one place, possibly working an angle into the handle so that the sledge head will be canted. Trim off shavings curled back from the head by driving in the handle, using a safe-edged file preferably, to prevent tooth damage against the steel.



8" Half Round Wood File



12" Half Round Wood Rasp

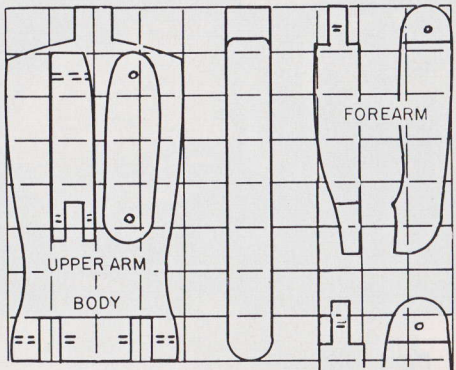
FENCE FITTING

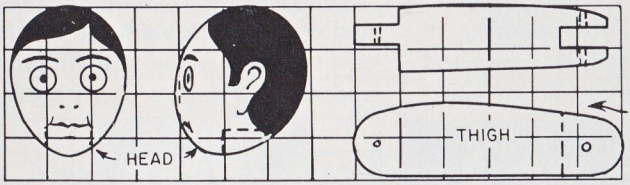
The wide variety of fence designs in use these days attests to the value and interest inherent in these enclosures. There are plenty of places in fence construction where rasps and files can be put to good use. Where pickets and boards are profiled or pierced a little smoothing of the edges to reduce pits torn in sawing not only improves appearance but improves the weathering characteristics. If the tops of posts are sawed roof-shape or pyramidal, snow slips off rapidly and rain water drains, keeping them from soaking up moisture. Where rail fences are built with rails and mortised posts some rasping of these holes may be needed to pass the rails properly.

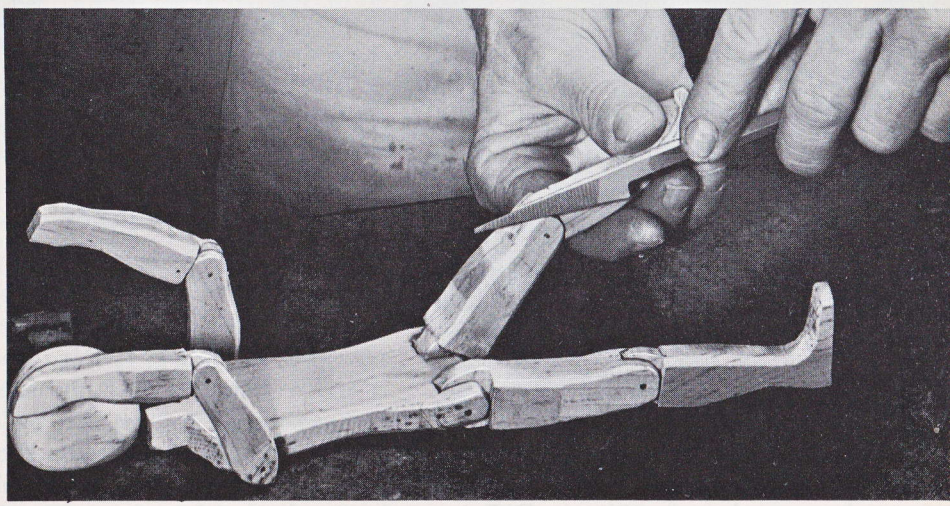
Toys

FITTING FIGURE JOINTS

Figure joints usually do not require close fitting but should be smooth. A file of the right size and shape will work in these small places. Where roughness might cause trouble, a careful stroke or two will align the parts and stop interference. Flare the ends of cord holes.





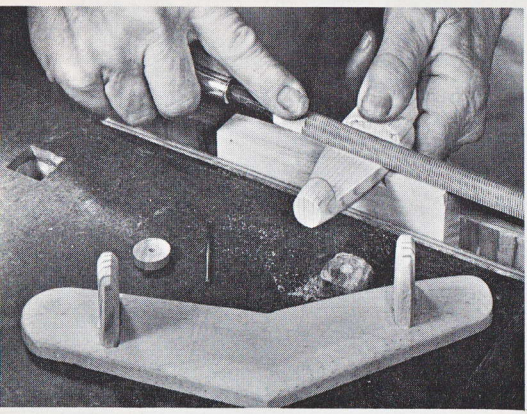


Silversmith's Riffler No. 2, 0

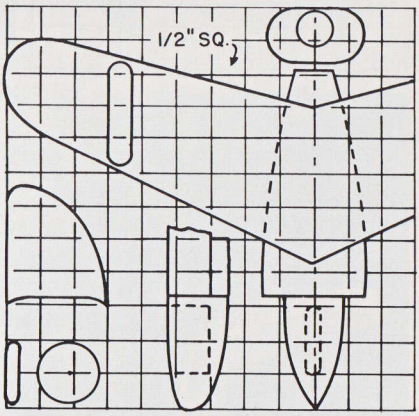
Bent Riffler—Three Square Bastard

DOLL HOUSE

Window and door openings in doll houses are easily squared and smoothed with files. When sided and cased with thin strips of wood the touch of a file will fit joints, and smooth details of all kinds.



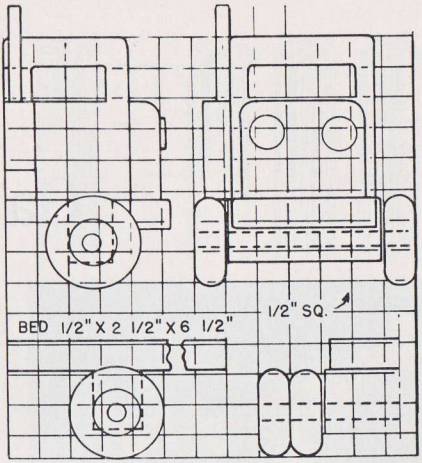
8" Half Round Wood File



TOY PLANE

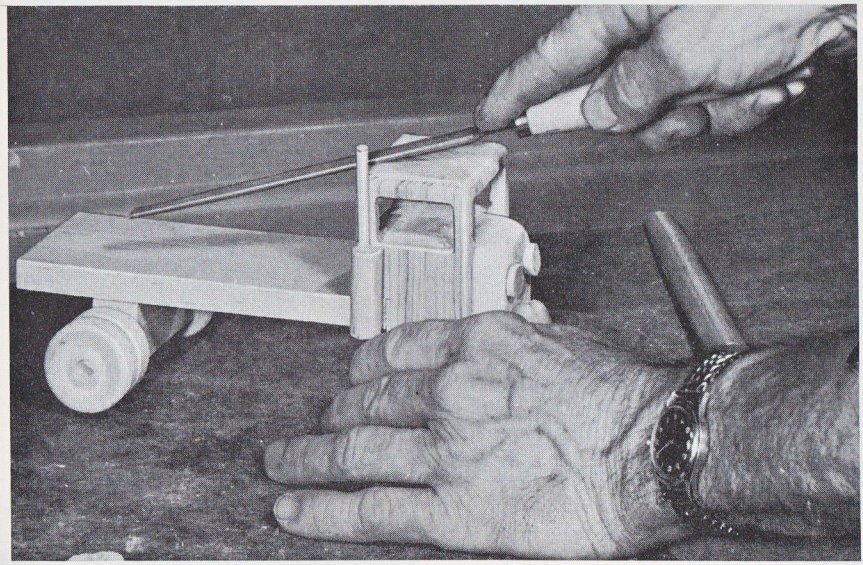
Children are critical of detail in toys and will point out faults in home-made playthings. Rifflers and round files are handy for smoothing the surfaces of toy planes, slenderizing the waist of

the jet fuselage to conform to the area rule, and shaping fuel tanks. Files take care of numerous details on passenger liners, troop transports, and cargo carriers.



TRUCK CUTOUT

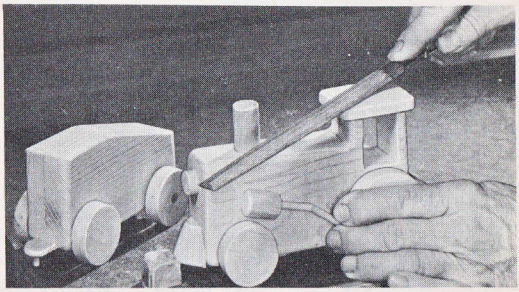
It is easy to cut out simple trucks and cars from pine blocks with a jigsaw or band saw. Smooth the cuts and break arrises with files.



6" Mill Bastard—Two Round Edges

LOCOMOTIVE

Locomotives, switch engines, and other rolling stock, like trucks, can be band-sawed in simple forms and painted bright colors for the entertainment of young children. They can be strung together in a long queue to be pulled along the floor, and are nearly indestructible. Smooth with files.



8" Half Round Wood File

Games

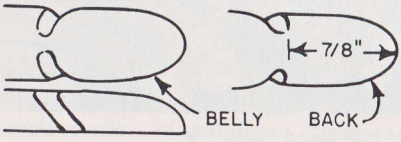
SHAPING BOW

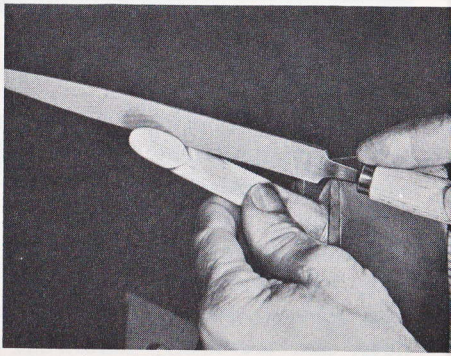
Shaping a bow calls for light cuts carefully distributed to insure symmetry of the limbs. Files offer perfect control and freedom from danger of notching and gouging, even in heavy roughing cuts.

10" Crossing File No. 0

NOCKING BOW

Nocking the bow for the string is often done before the limbs are finish-shaped. Use a round-edge file, flaring the ends of the notches and rounding all contacts with the string to prevent wearing it.



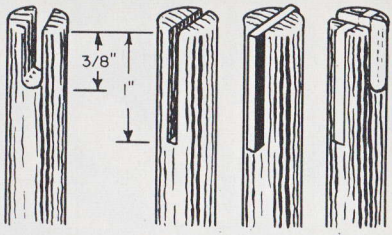


6" Mill Bastard—Two Round Edges

NOCKING ARROW

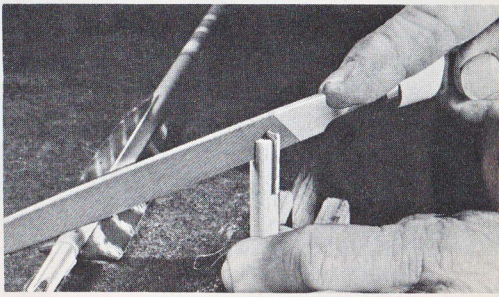
A birch arrow needs no foot reinforcement but is nocked directly by sawing straight in from the end ¼ in. deep, cutting across the annual rings of the wood. File to a width of ⅛ in., rounding the bottom and all arrises.

An arrow of Port Orford cedar needs re-enforcing with a thin plate of plastic, fiber, or horn glued into a slit cut with the grain of the annual rings. The notch is made at right angles to the insert.

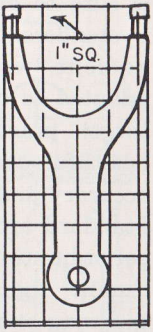


SLINGSHOT HANDLE

A powerful slingshot in a skillful hand is an accurate and potent weapon. Selection of a forked branch for the handle is somewhat haphazard, and it is better to shape it from a piece of substantial hardwood. Saw out, chamfer, and round smoothly, using, for instance, a 4-in-Hand or Cabinet Rasp.



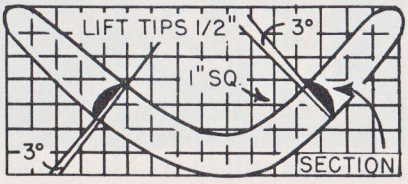
6" Mill Bastard—Two Round Edges

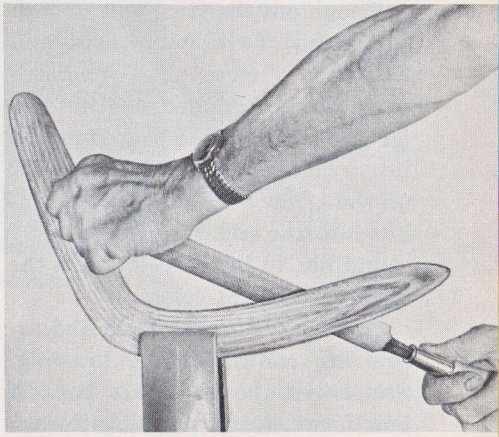


8" 4-in-Hand Rasp

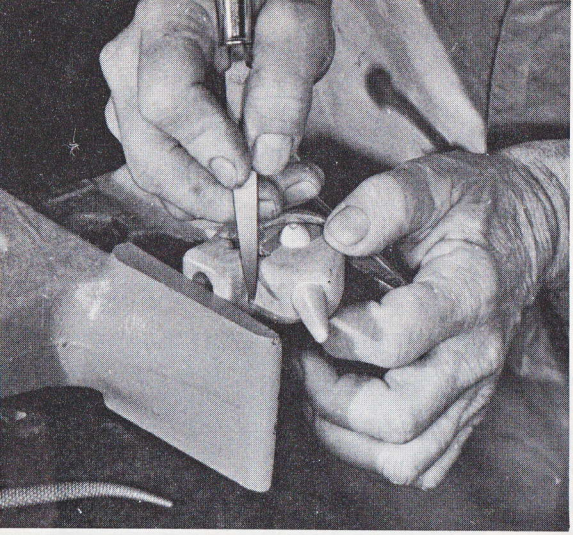
BOOMERANG

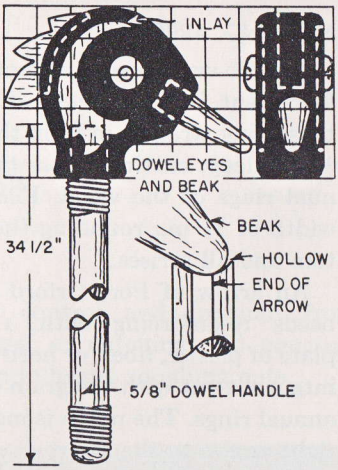
Fascinating in its round-trip flight, and capable of knocking down varmints and other small game when used for hunting, a boomerang is a fine workshop project. Made in various forms, it gets its action from the airfoil surfaces, which must be carefully shaped with rasps and files if it is to have proper balance and speed.





10" Half Round Wood File





Bent Riffler—Half Round Bastard

THROWING STICK

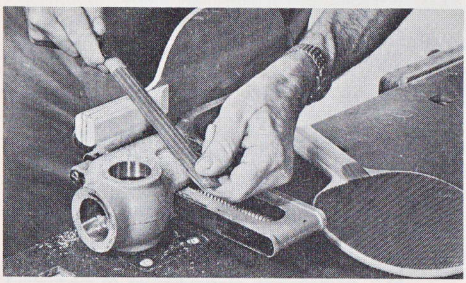
Archery via the throwing stick is sure to excite curiosity among bystanders. The Aztec hul-che, an ancient weapon, is perfectly adapted to competitive sport and target practice, and makes for healthful exercise. With practice accuracy and distance is achieved. Standard archery arrows, the target or hunting type, 28 in. long, are usually the best missiles for the throwing stick.

Rough out the stick and smooth to finished form with rasps and files. Use a piece of ¼-in. hardwood dowel, rounded on the projecting end, for the peg, gluing it into a hole bored to receive it. Cut off the arrow nock and work a hollow into the end with the tip of a round file, to fit the peg. Paint the stick with bright colors.

Hand grips for the stick and arrow are shown in the drawing. Stand with the feet apart, the left foot forward and pointing toward the target, the right foot back and at right angles to the left. Draw the stick with the arrow in place straight back over the shoulder and make an overhand swing, rising on the right toes. Allow the arrow to release from the lightly-pressed thumb, a movement that becomes automatic with practice.

PING PONG

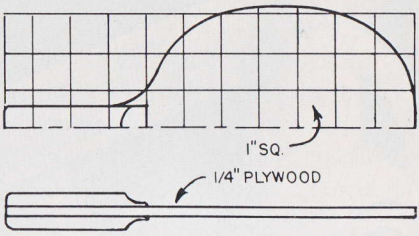
Bats are simple of construction. Paddles can be sawed in stacks from plywood with scroll or band saw. Rip the handles to rough dimensions, bore holes at the blind ends of the paddle slots, and saw the slot sides. After gluing the bats



8" Half Round Wood File

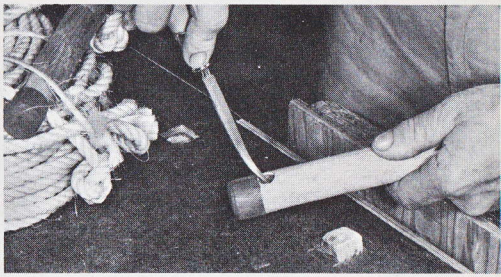
together round the paddle edges and shape up the handles with rasps and files.

Apply pipped sheet rubber to the faces of the bats with contact cement. If this material is hard to get, medium-fine sandpaper can be substituted.

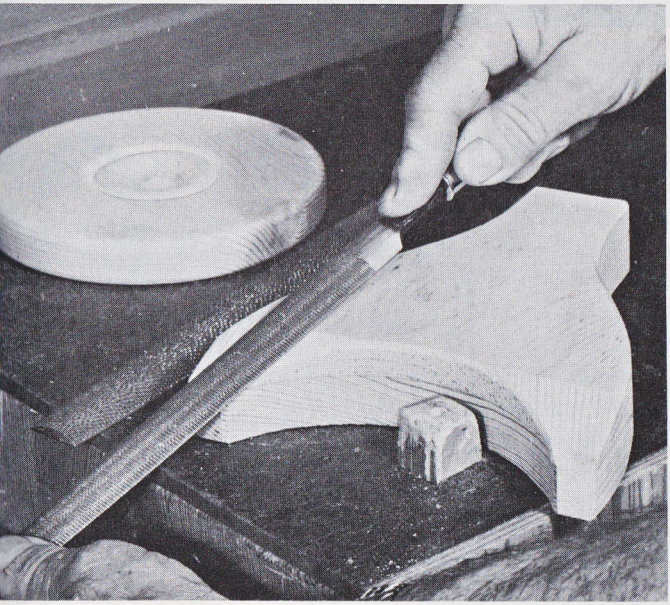


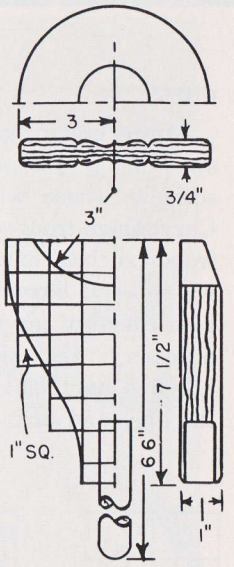
WATER SKI HANDLES

Breaking of water ski cords is not unknown. Handles are made on a production basis and the holes, if not rounded at the ends, can fray the ropes. Ream the hole with the tip of a half round riffler, belling them smoothly. Shellacking helps.



Bent Riffler—Half Round Bastard





8" Half Round Wood File

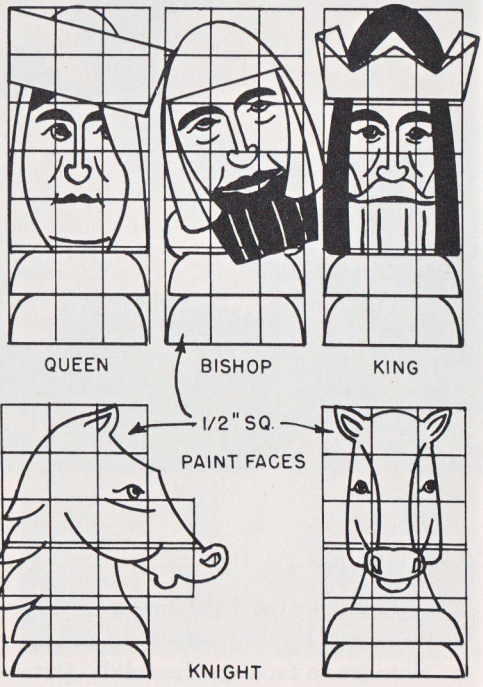
SHUFFLEBOARD

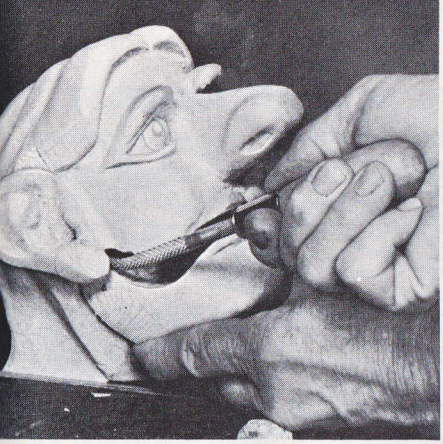
Shuffleboard discs should be well rounded on the edges to lessen damage to faces as they slide. Patternmaker's rasps and cabinet files serve well, and also for smoothing the pushers and fitting handles.

8" Half Round Wood File

CHESS

Modernistic chessmen offer sculpturing pastime on a small scale to those who make them. Carve them from contrasting hardwoods, such as mahogany and holly, walnut and boxwood, etc. A wide assortment of carving chisels is not necessary. Use half round wood files and handled rifflers to smooth the lines and surfaces of the pieces.



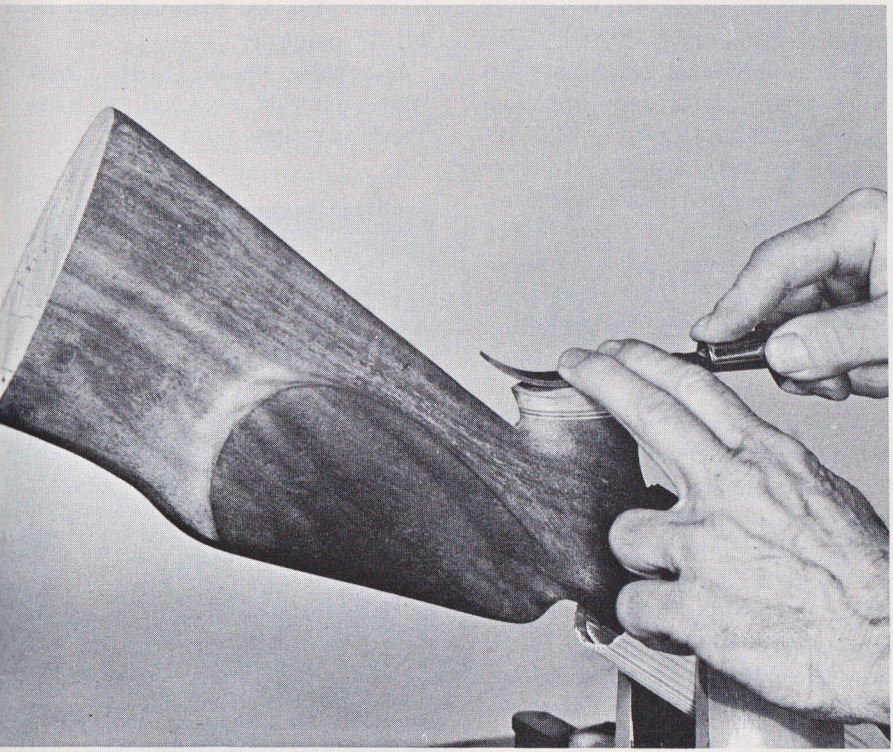


Bent Riffler—Round Rasp

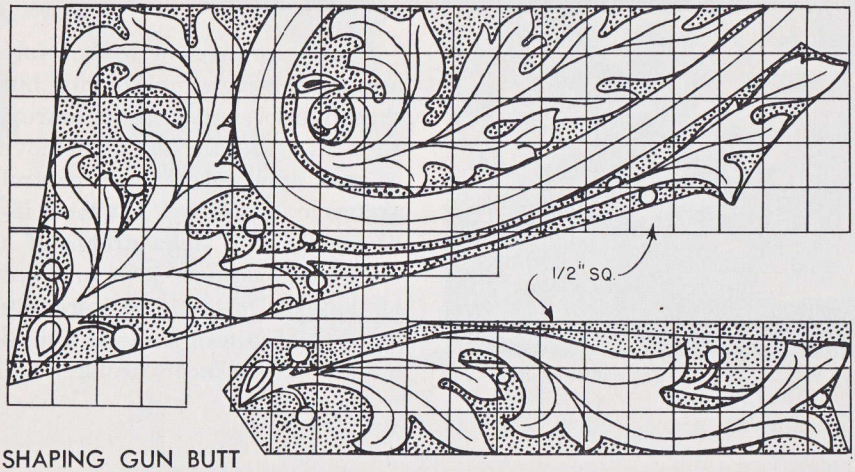
PUPPETS

Figures for marionette shows are assembled with simple joints, but these must be smooth on bearing surfaces so that the limbs will move of their own weight when control strings are slackened. Fit them individually with light strokes of a file. Articulation of jaws and lips of puppets should be carefully fitted to keep face joints to a minimum. Smooth face with files.

Hunting and Fishing



Bent Riffler—Hand Bastard



SHAPING GUN BUTT

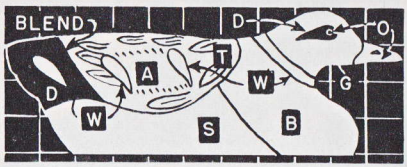
Professional gunsmiths mount a butt blank on a special cradle for shaping. The amateur can mount his on a lathe, or simply build a wooden support with screws through the ends to carry the piece. Commercial blanks are engine turned and show the tool grooves, which can be quickly removed by working uniformly over the surface with rasps and files. From there on shaping according to the worker's fancy must go largely by eye. Cardboard templates used at stations marked on the support will guide in obtaining symmetry.

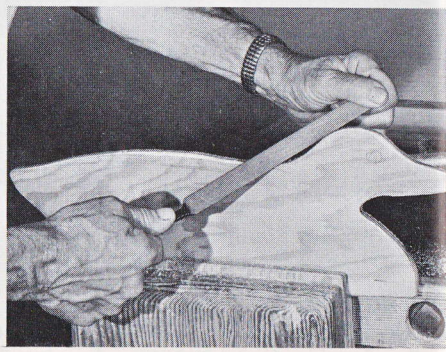
Carving should be low and free from undercuts and sharp edges, or it will quickly wear down.

DUCK DECOY

To carve a cedar duck decoy trace the profile on the side of the block and the plan on top. Bandsaw the sides, nail the pieces back with brads in waste wood, and saw the profile. If a band saw is not available, chop the corners and go to work with a good-sized coarse rasp. As the shape of the duck is approximated change to finer rasps. If finishing strokes are taken feather-wise, the rasp cuts can be left for painting.

Silhouette decoys sawed from ¼-in. exterior plywood, a half-dozen at a time, pack easily.

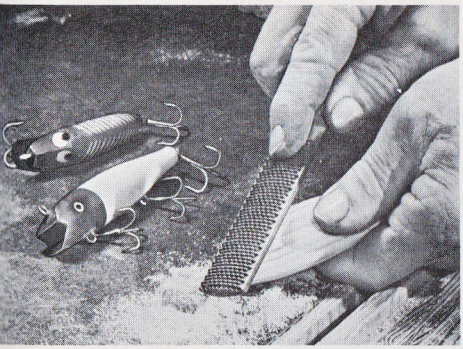




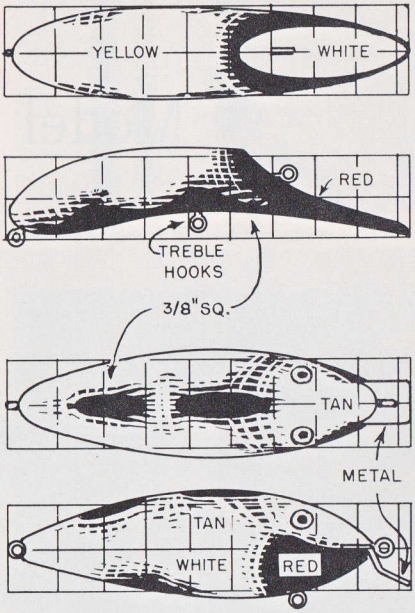
8" Half Round Wood File

WOODEN MINNOW

Whittle minnows and other similar lures to shape and hold between the fingers to smooth, using files with light sweeping and rolling strokes.

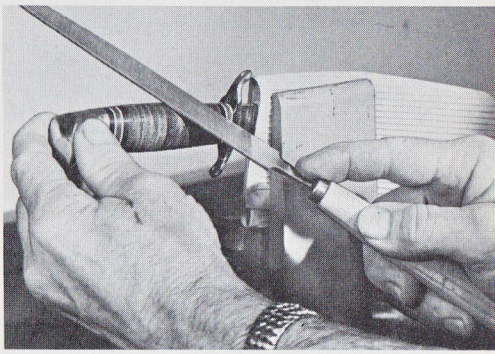


8" 4-in-Hand Rasp

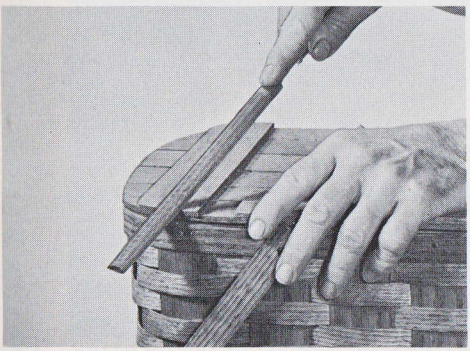


LEATHER KNIFE HANDLES

Sole-leather washers pierced, coated with glue, and forced over the tang of a hunting knife make as serviceable a handle as it is possible to get. If the tang is not threaded for an end nut the handle can be clamped endwise until dry. Shape with a fine rasp and a file, and sand smooth. A coat or two of sanding sealer completes the job.



6" Mill Bastard—Two Round Edges

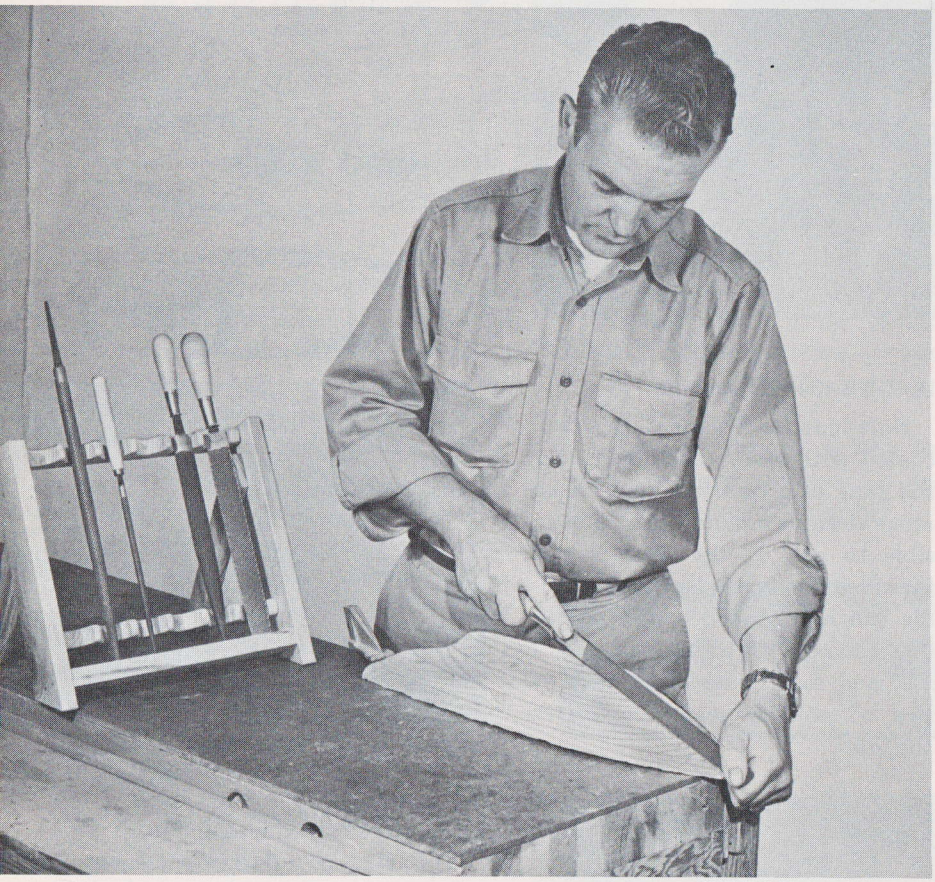


10" Half Round Wood File

SMOOTHING BASKET EDGES

The edges of lunch baskets are left square and the sharp arrises, rubbing against bedding or tents when packed in a car trunk may chafe holes or cause other damage. Rounding off the upper arrises with a 10" half-round wood file removes this possibility. A coat of penetrating sealer should be applied to the raw wood.

Model Making



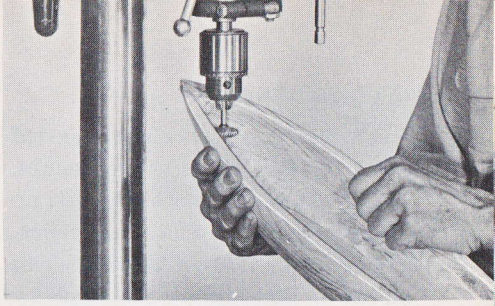
10" Half Round Wood File

SHAPING BOAT HULL OUTSIDE

Boat hulls can be brought to shape outside with rasps and files. Clamp the hull to the bench top with the side to be worked blocked up, and shear off corners with vigorous strokes of a large rasp. As the shape is worked down to the vees of the joints in the lifts, change over to finer-cut rasps and then to files. Test the beam profile with cardboard templates placed at stations indicated in the plans.

INSIDE OF HULL

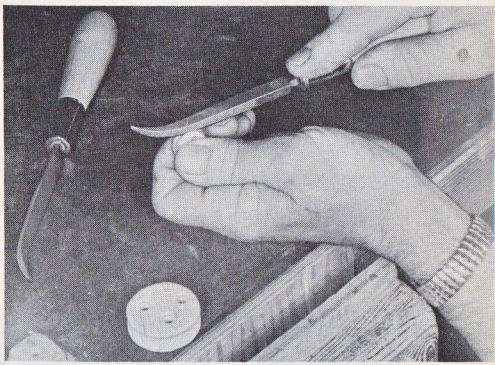
Rough the inside of the hull with a gouge, cutting down nearly to the joints. Handled rifflers in round rasp, half-round bastard, and three-square rasp and bastard are useful for finishing the surface. The tips fit details.



Cylindrical Shape Ground Bur—Style RR-15E

DEADEYE

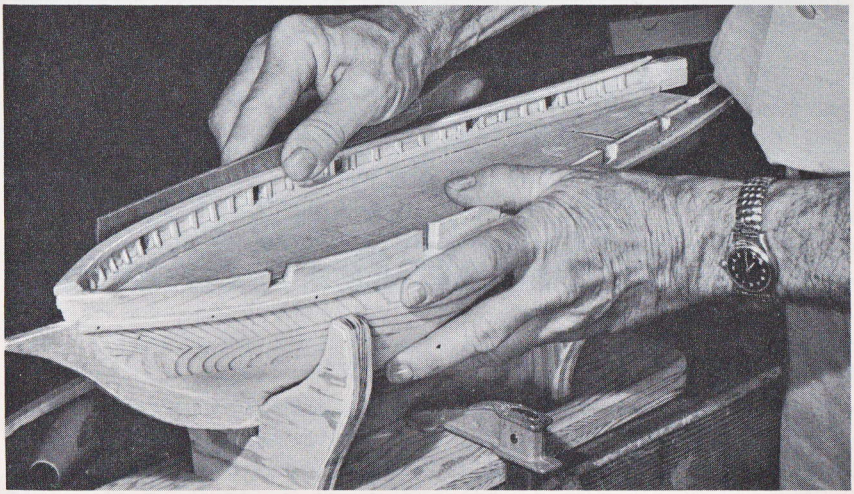
Saw out the deadeye and drill for the lanyard. Drive brads into a stick of wood in a pattern to match the holes, cut off the head, and slip the deadeye over the brads to hold them for filing the sides. Hold it between the finger tips to round the edges, grooving them with tip of a three square riffler.



Bent Riffler—Three Square Bastard

TRUING BULWARKS

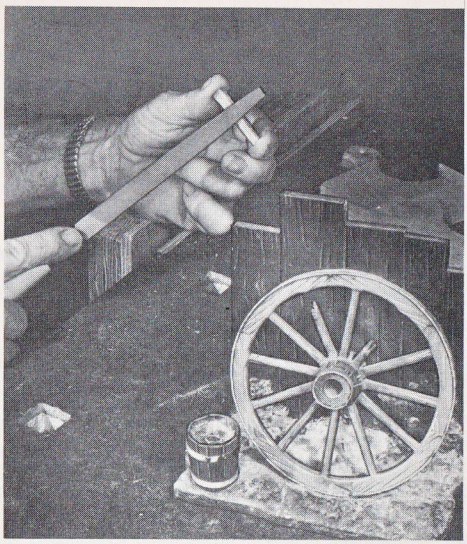
Deck details of a model ship afford innumerable opportunities for the use of wood files. After the bulwarks, waterways, and timberheads are installed the rail can be glued in place. When dry, true up the outer edge with a file stroked lengthwise of the rail. True the inner edge with the round side held diagonally. Smooth with fine sandpaper, breaking the arrises.



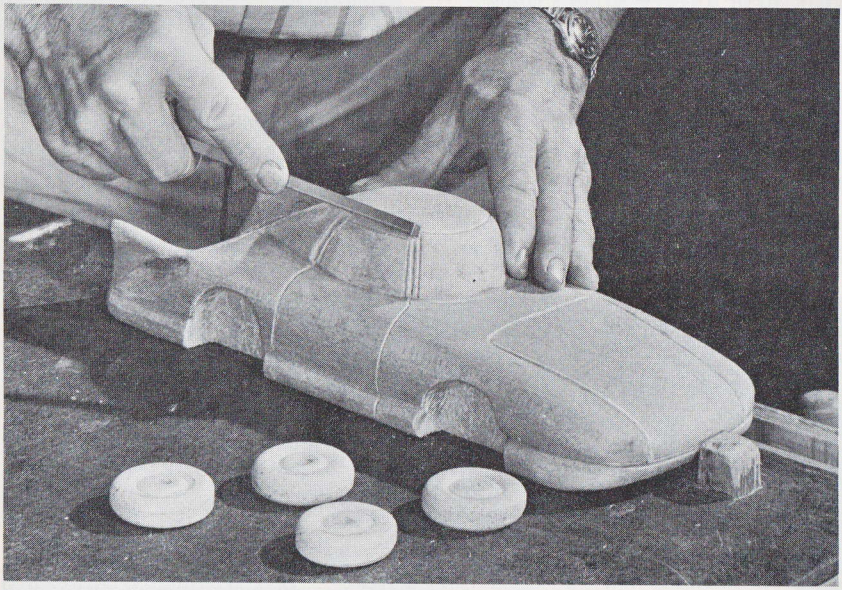
8" Half Round Wood File

WAGON WHEELS

Artillery-type wheels are needed for such models as stagecoaches, cannons, etc. The best are built up like real wheels of fellies, spokes, and naves or hubs. The spokes can be cut on an ordinary table saw by using a special wooden insert through which the saw cuts its way, so that the thin ripping will not be pulled through the wider slot of the metal insert. Holding the spoke ends between the fingers dress it to an elliptical section by rocking a half round file with sidewise sliding motion. True the felly segments and after assembly round the inner edges between the spokes.



6" Mill Bastard—Two Round Edges



Silversmith's Riffler No. 12, 0

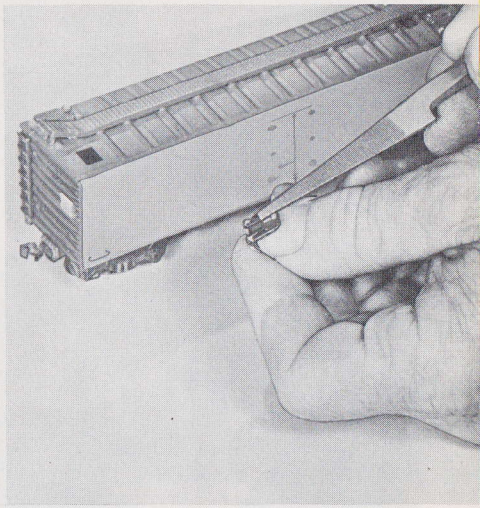
AUTO MODEL

A model is the way to check on your personal ideas of body styling. Balsa is a good material, but sugar pine is much firmer, more durable and in general more capable of detailed carving. Cutouts for lights, bumpers, etc., can be glued on the body block. Most of the actual

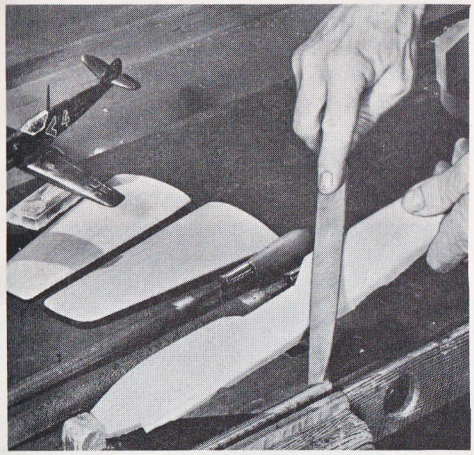
modeling, after band-sawing from the top and side, can be done with rasps. Work over the entire model continually, starting with large rasps and changing to smaller ones as details emerge. After accurate roughing complete one side and make templates for the other side.

RAILWAY MODELS

A fascinating part of model railroading is making the rolling stock. Small files can be used to shape many details, such as parts of signals, bridges, buildings, etc. The roof of a passenger car is a good subject for files.



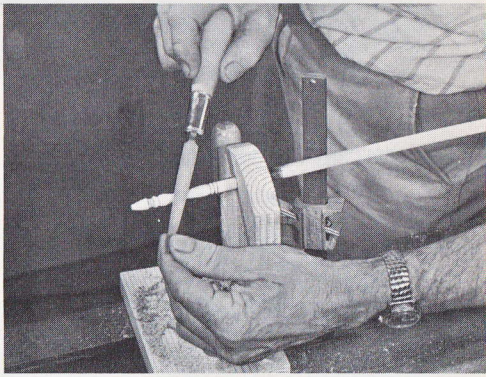
Silversmith's Riffler No. 2, 0



8" Knife File No. 00

MODEL PLANES

Boys and men alike are fascinated by the construction of solid-model planes. Such details as ribs, elevators, rudders, fuel tanks, and landing gear shape up readily with files. When using balsa wood hold the file with one hand for most of the strokes.

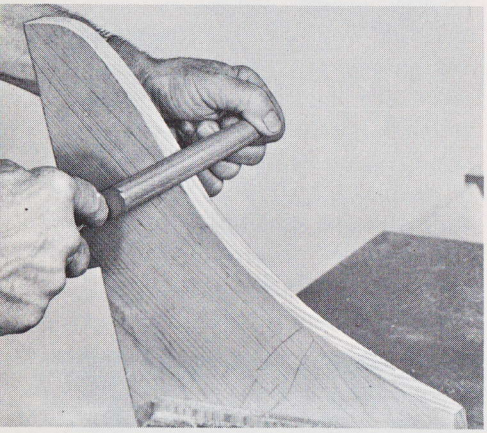


Bent Riffler—Half Round Bastard

MINIATURE FURNITURE

Pigmy furniture complete with paneled cabinet ends, cabriole legs, and drawers that open and shut is a striking branch of the model-maker's art. There are numerous uses for files. Tiny turnings are made from dowel sticks by gripping in a drill chuck, passing the rod through a hole in a block, and turning to shape with small files.

Boat Building



10" Half Round Wood File

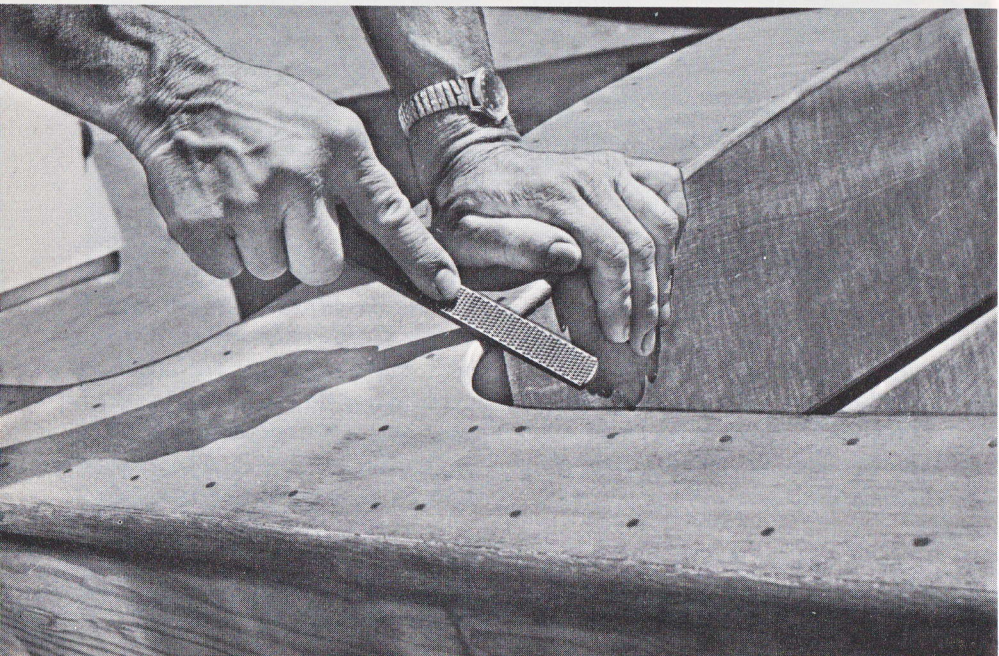
TRUING TRANSOM KNEE

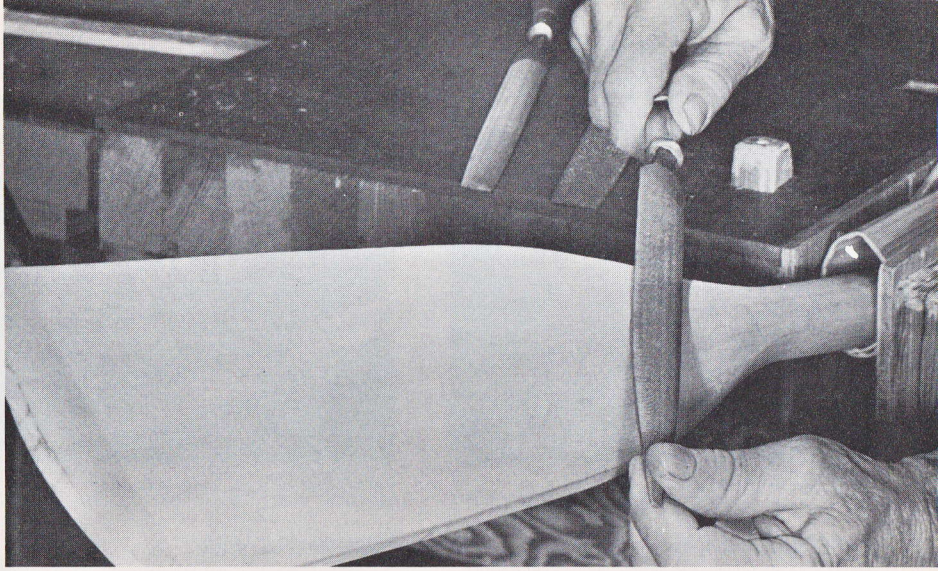
The larger sizes of rasps and files are efficient in shaping the sawed sections of boats. They are useful in forming stem and stern, keel, and chine notches, and for dressing stop-water plugs, touching up frame gussets, forefoot, and working coaming details. Smooth the edges of a transom knee with rasps and files.

FITTING MAST STEP

A few rasp and file strokes fit the mast of a small boat to its step.

8" 4-in-Hand Rasp



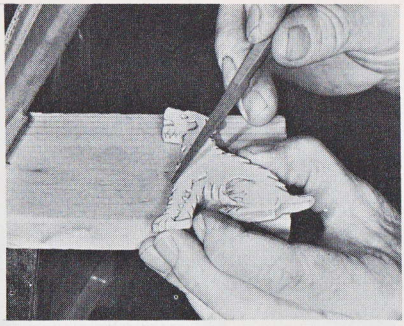


10" Crossing File No. 0

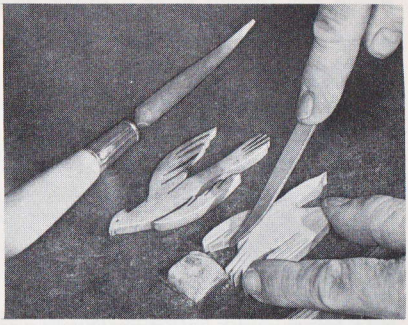
CANOE PADDLE

Make canoe paddles from marine-grade ash. Chamfer roughly to octagon shape and work with plane, rasps and files.

Wooden Costume Jewelry



Silversmith's Riffler No. 2, 0



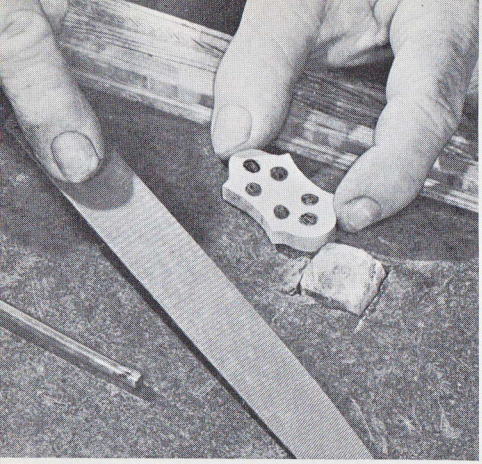
Bent Riffler—Three Square Bastard

CARVING TERRIER

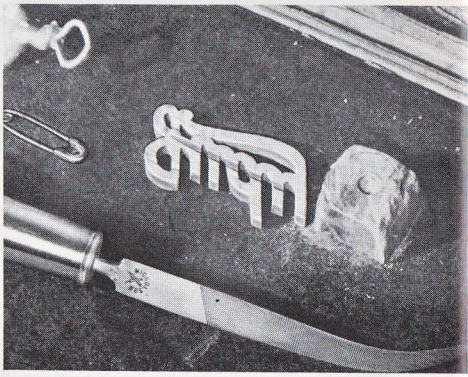
Wooden costume jewelry makes an appreciated gift for young girls. Here the tufts of a wire-haired terrier pin are modeled up with a three-square riffler.

INLAID BIRD

Inlaid lines are easily contrived by scoring vee grooves with a square riffler and gluing in small squares of contrasting woods. File flat when dry.



8" Knife File No. 00



Bent Riffler—Three Square Bastard

REPEAT INLAYS

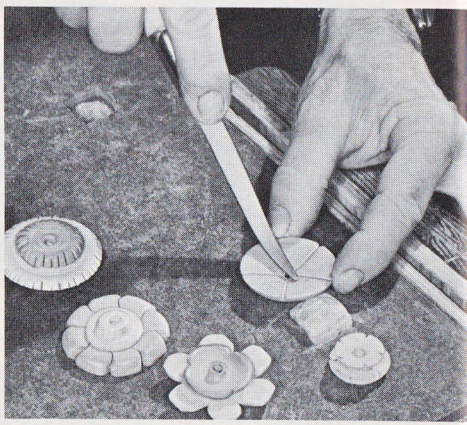
Interesting effects in costume jewelry are obtained with repeat inlays. Glue a veneer of contrasting color to a backing of thin hardwood veneer. Prepare a punch by cutting off square the end of a nail and filing it to the shape of a square, lozenge, star, etc. Lay the prepared blank on the bench top and mark the inlay positions. Place the punch over a mark and strike a sharp, light hammer blow, which will compress the wood, driving the veneer down into the ground. Repeat at the other marks, and file smooth. As the punched veneers have been driven down, they fit perfectly.

SCROLL-SAWED NAME

A girl's name scroll-sawed in ⅛-in. plywood or slightly thicker solid stock is personalized and makes a pin cherished by the recipient. Rest the cutout on a small notched support and true it with small files stroked in the vertical. Lettering can be print style or script. Monograms make interesting pins.

TURNED FLOWER

Flower-shaped pins in a wide variety of patterns can be turned on a lathe. Built up in one, two, or three tiers of petals from a solid piece or layers of different colors, they are three-dimensionally charming. A knife-edge file is useful for dividing the petals, rifflers modeling them.

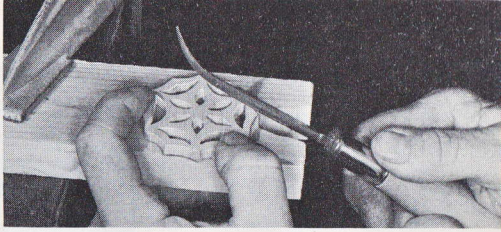


Bent Riffler—Half Round Bastard

SNOWFLAKE PINS

Snowflake patterns can be worked up geometrically and

sawed from dark wood for use with light-colored dresses or blond for dark costumes. The edges should be smoothed and arrises broken to prevent catching on fabrics.



Bent Riffler—Half Round Bastard

LACQUERING AND ATTACHING PINS

After sanding, suspend the wooden pin on a wire hook and dip into sealing lacquer. Lay right-side up on a pad of newspaper, which will draw off the excess lacquer. When dry, dip in gloss lacquer and dry on paper again.

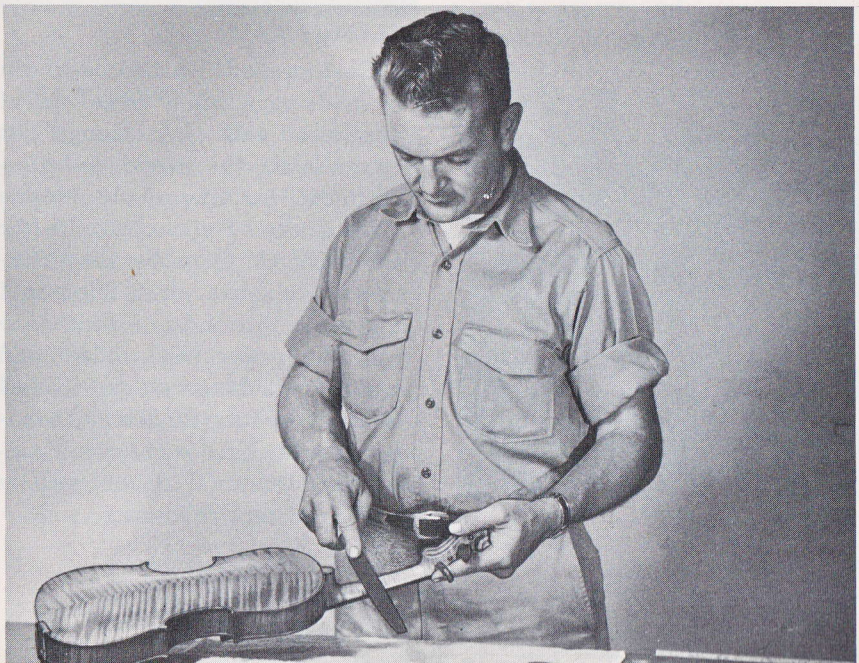
While commercial pins are neat and convenient, small safety pins can be used. Cut a deep groove in the back and cement the pin in with model airplane glue.

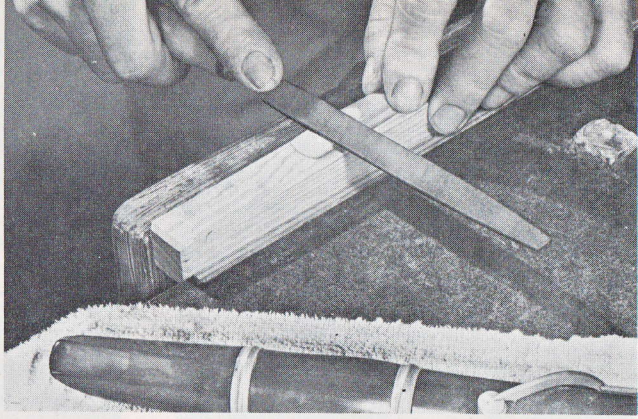
Pertaining to Music

VIOLIN NECK

Files find endless uses in instrument building. The amateur violin maker and the repair man who have occasion to make a violin scroll, shape a peg box, or install a neck, can make good use of flat, half round, and round rasps and files in their labors.

8" Knife File No. 00





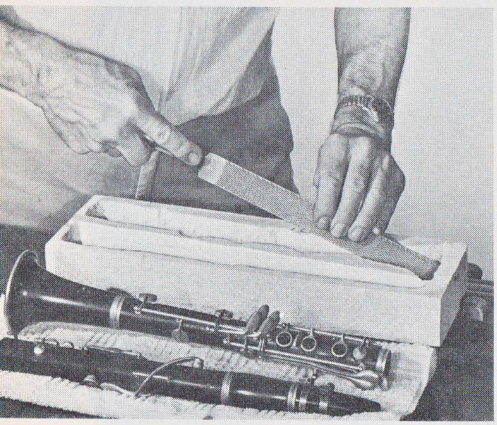
6" Mill Bastard—Two Round Edges

CLARINET REED

A damaged clarinet or saxophone reed can sometimes be corrected by reworking. Sometimes the musician likes to make his own. Flatten the under side by rubbing the split cane on a file and a sheet of sandpaper held flat on a sheet of glass. See that every portion of the cane has been sanded. Finish with a fine grit, such as lacquer sanding paper.

To shape the top of the reed, taper it as it is held flat on the glass with the fingers of the left hand; or bind it on with string. Proceed with filing until the end thickness is less than $\frac{1}{32}$ in. thick, then switch to sandpaper. In the final form the tip is so thin that magazine print can be seen through it. Trim the end to shape with manicure scissors or a razor blade.

If a trial on the clarinet proves the reed to be entirely too stiff, the file can be used again until a test indicates that the thickness is about right; then return to sandpaper. At all times avoid thinning too much at the center of the slope, which would take the vitality out of the tone. The roundness of the butt shades to flatness at the tip.



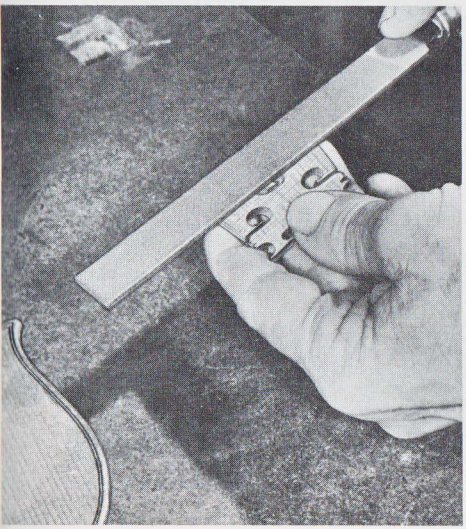
10" Patternmaker's Rasp

CLARINET CASE

Custom-made clarinet cases can be made very thin if carved out of planks of soft pine. Gouge out channels for the joints of the instrument, building up the outside with blocks to give clearance for the bell end. Allow for the thickness of velvet or plush lining and for projecting keys. Smooth the joint depressions with rifflers, and rasp off outside corners and the bell blocks. Smooth with files and sandpaper and cover with plastic upholstery material. Glue with a water-resistant adhesive.

SHEPHERD'S PIPE

Delicate touches with a file in the air channel and the window of a shepherd's pipe may make the difference between no sound at all, a sweet and full tone, or a strictly indifferent tweedle. A small square file for the window and a flat cabinet file for the mouth cork will do the shaping.

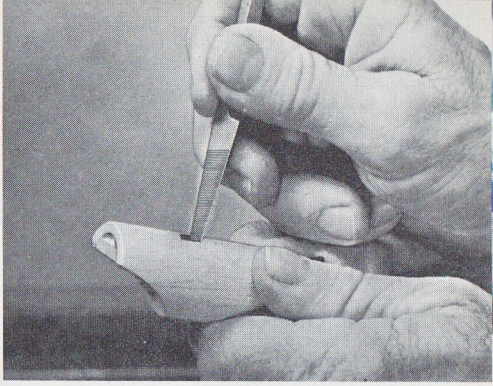


6" Equaling File No. 00

VIOLIN BRIDGE

To replace a violin bridge trace off the outline of the damaged bridge and saw out with a fine blade. Smooth all around with a file, approximating the violin belly curve. File the taper in the faces and sand carefully.

The material, such as birch or sycamore, should be vertical-grained, thoroughly seasoned like old violin wood, if possible, and heavy for a light instrument, light for a more solid violin.

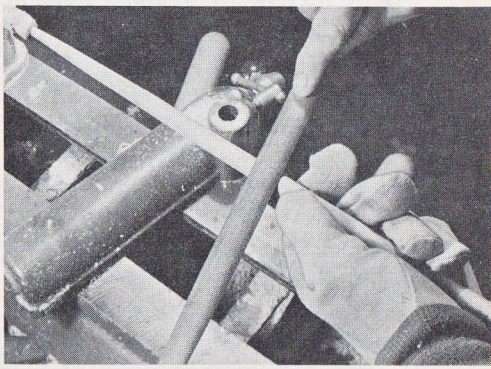


Silversmith's Riffler No. 2, 0

BATON

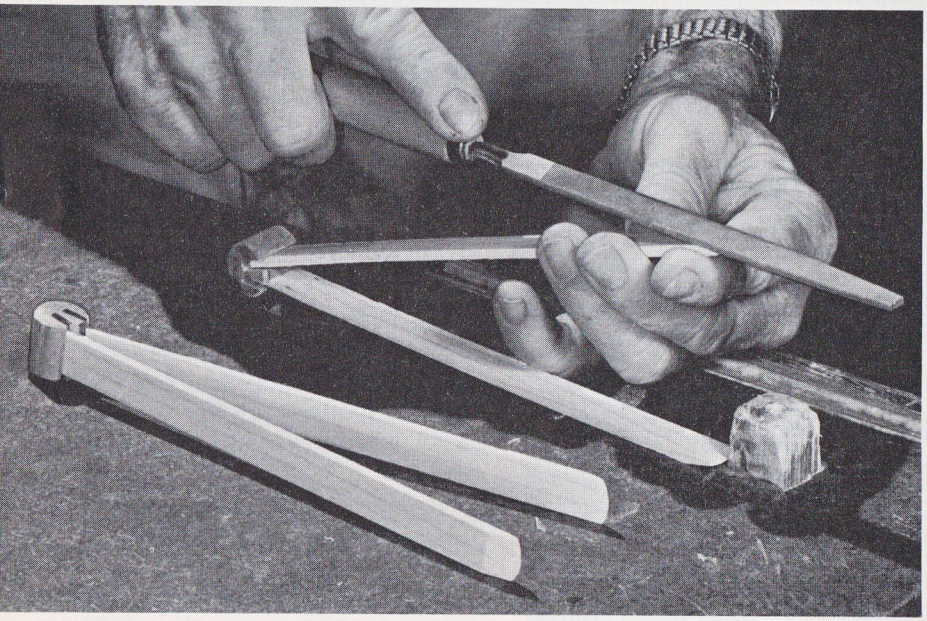
A baton can be shaped by hand or turned on a lathe. If made by hand, saw a tapering square stick, chamfer to octagonal section with a plane, and finish with a flat file face stroked forward and laterally, the baton being turned frequently. When roundness is attained, sand with abrasive paper wrapped around the stick and rubbed lengthwise while the baton is twisted. Finish with fine sandpaper rubbed lengthwise.

To turn the baton, work down with chisels, substituting a fine rasp as whipping becomes troublesome. Support the stick with the fingers of the left hand while wearing a glove.



8" Half Round Wood File

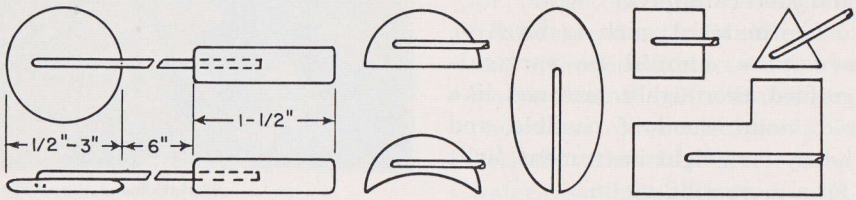
Photographic Equipment



6" Mill Bastard—Two Round Edges

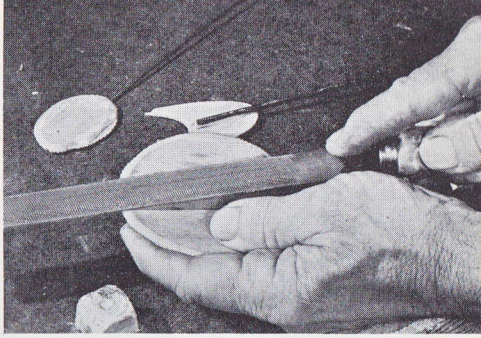
PRINT TONGS

Print tongs can be made from two sticks of hardwood ⅛-in. by ¾ in. by 8 or 10 in. and a piece of 1-in. dowel ¾ in. long. Make two saw cuts radially in the dowel, about ⅜ in. apart, and widen the cuts with a knife file until the ends of the sticks can be forced in. Glue them with a waterproof adhesive, carefully aligning them. When dry, press the sticks together, round off the ends somewhat and rasp bevels on them to sharpen them like chisels. File all rough spots and sand smooth. A lacquer finish will last for some time.

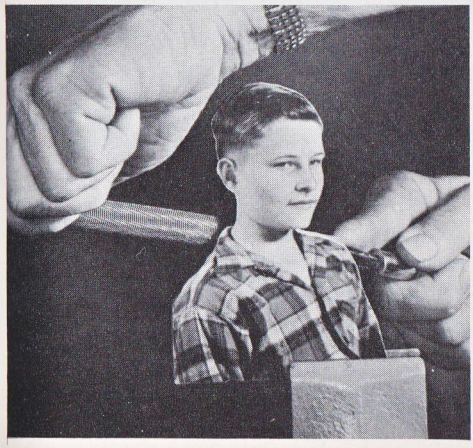


DODGERS

A set of light shades or dodgers for use in enlarging is made by scroll-sawing from ⅛-in. plywood. Smooth edges and file them rounding, nick the edges to help fuzz the shadow cast, and glue wire rods to the dodgers with model airplane cement. Use dowel-stick handles.



8" Half Round Wood File

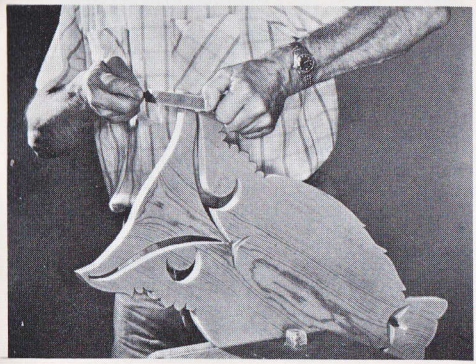


8" Half Round Wood File

PHOTO FIGURE CUTOUT

A gift that will delight a child is a photo cutout portraying himself or a friend. A figure 4 to 6 in. high works up nicely. Mount the picture on a scrap of plywood, using contact cement of the kind employed for gluing plastic laminates, and scroll-saw with a fine blade, working carefully around the figure to silhouette it. Leave a tenon at the foot for mounting in a base, and lightly round the rear arris. Scroll-saw or turn a base to hold the figure upright. Coat with crystal-clear plastic lacquer.

Display Items



8" Half Round Cabinet File

SILHOUETTED SIGNS

Sign cutouts in the form of figures, scrolls, etc., sometimes pierced to pass the light and often partly or wholly as backing for neon lights are readily smoothed with rasps and files. Round the arrises for good weathering. For outside work choose exterior grade plywood. Splintering of fir is lessened by using a jigsaw insert that barely clears the saber blade.

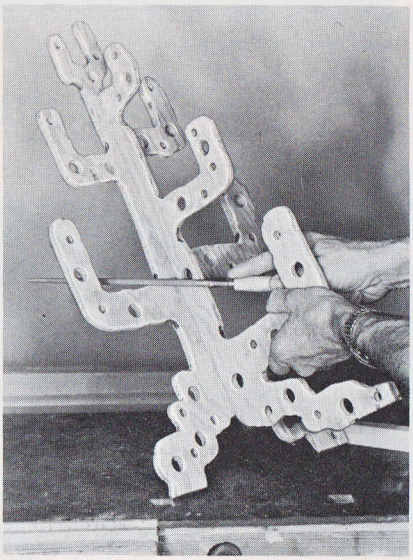
8" Half Round Wood File

JIGSAWED SIGN

Cutout letters, cursive script, and similar jigsawed signs, cut from solid wood usually, if individual letters in large sizes, and from exterior plywood in smaller sizes. A quick way to smooth the edges of such cutouts is to adapt a half-round bastard file to mounting in the saw chuck. Break the file to 5 in. in length, grind the tang roughly to a uniform diameter of ¼-in., and clamp in the chuck. The file cuts square with the face, or at a bevel if the table is tilted, and smooths as fast as sandpaper, with little clogging. There is no tendency to crown the edge. Edges of half round files work into corners, the arched side smooths concave edges, and the flat side trues straight or convex edges. Break the arrises by hand.

HAT BRACKET

Display racks for hats, modern store shelves and tables, animated advertising gadgets, all have irregular edges that can be brought to shape by filing. In many cases files offer the only practical means of removing saw marks from edges; and if a wise selection is made, the job can be done in a hurry.



8" Round Wood Rasp

Pattern Making

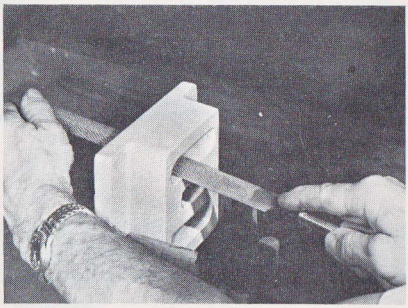
8" Round Wood Rasp

SMOOTHING PATTERNS

Patterns for metal castings often take involved forms with many surfaces and compound curves. In split patterns the question of fitting the parts enters in. Rasps and files will shape most of such areas from the blocks, although in large patterns some chiseling is best. Round files and rifflers get into swept areas between sides meeting at an angle, with flat rasps and files rounding off corners and arrises.

DRAFT

All patterns are given "draft," a slight taper, to permit their removal from sand molds without damaging the molds. On prominent flat surfaces this is accomplished by the original sawing and planing, but irregular shapes are most evenly given draft with rasps.

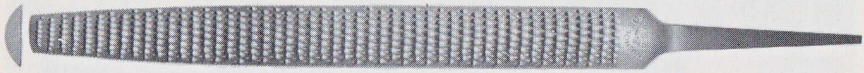


10" Patternmaker's Rasp

Additional Rasps and Files Shown in Illustrations

4-In Hand

Half Round Cabinet File



Half Round Wood Rasp

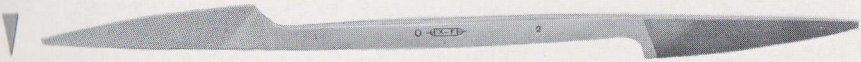
Mill Bastard

Mill Bastard 2 Round Edges

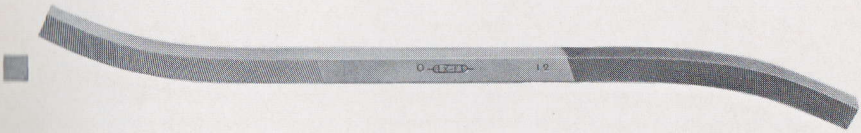
Pattern Makers Cabinet Rasp

Crossing No. 00

Equaling No. 00



Silversmiths' Riffler No. 2, 0

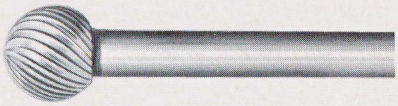


Silversmiths' Riffler No. 12, 0

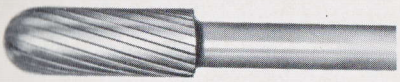
NOTE: Wood Files and rasps have courser teeth than cabinet files and rasps. Wood and cabinet rasps are finished in either bastard or smooth cuts. Machine and special files are useful for small or fine work and for finishing cuts after using regular files, or before sanding.

Rotary Power Files

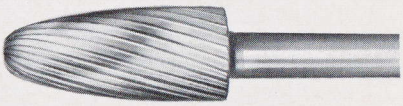
Di-Shape Ground Bur, Style Y5Q



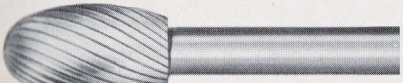
Ball Shape Ground Bur, Style Q7



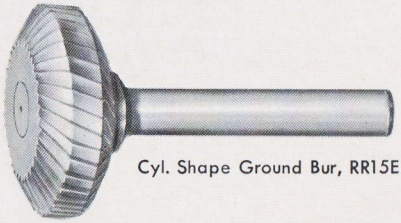
Radius End Cylindrical Ground, Style P5P



Tree Shape Radius End Ground Bur, Style S7Q



Oval Ground Bur, Style R7M



Cyl. Shape Ground Bur, RR15E

N-196 Printed in U. S. A.